FIG. 1

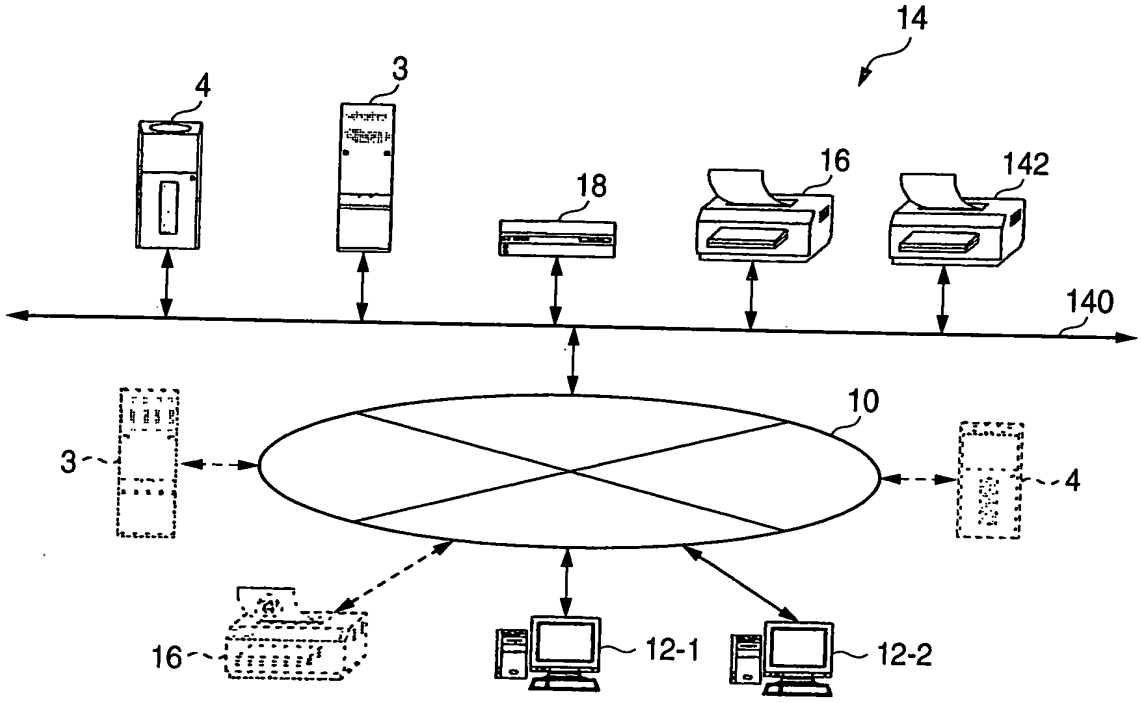
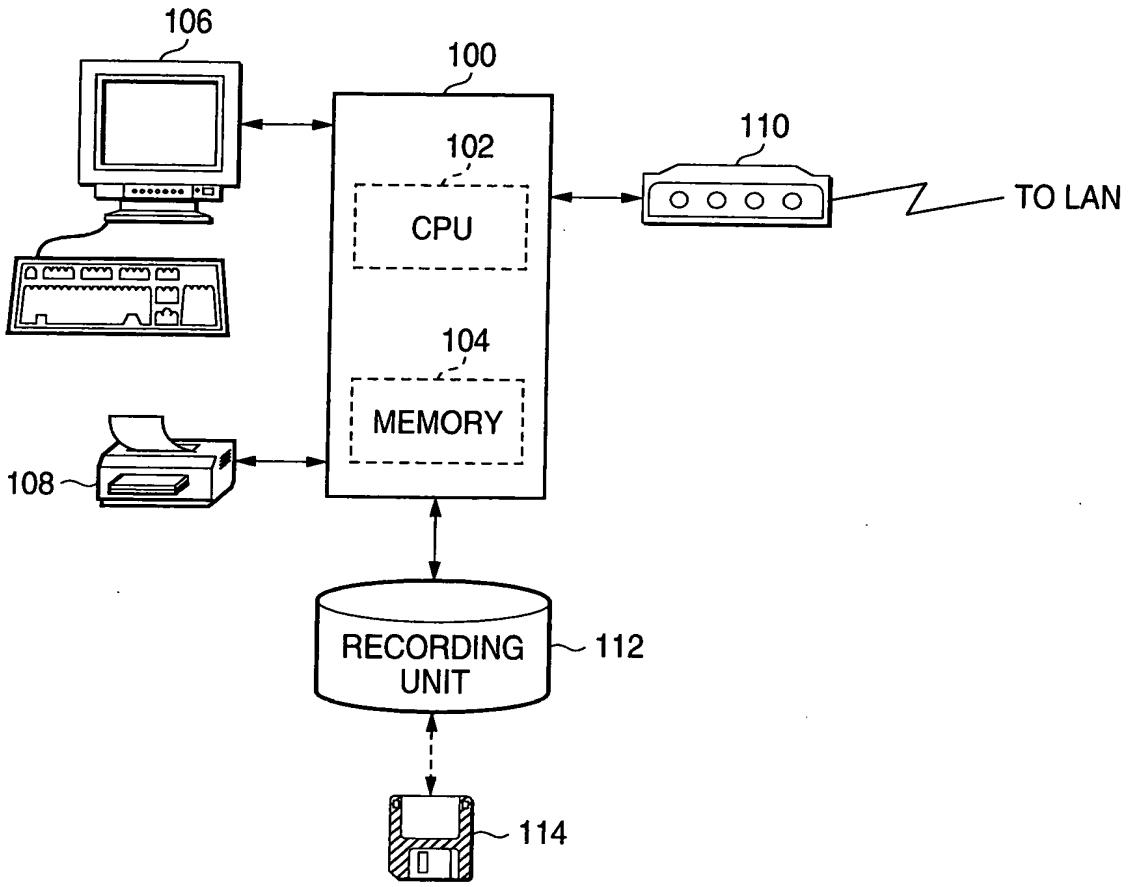


FIG. 2



3, 4, 12, 16, 18

FIG. 3

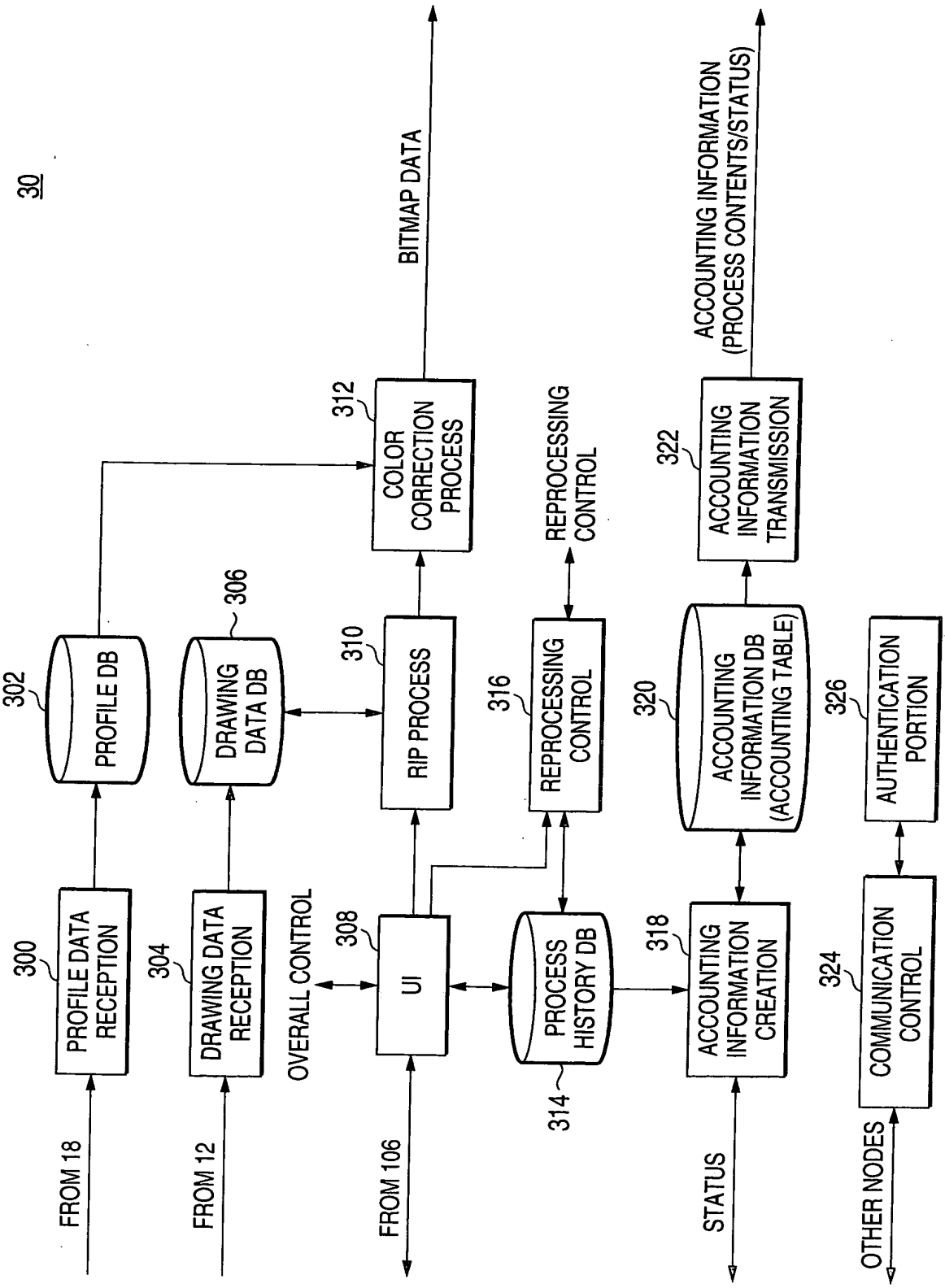

30
FROM 18
FROM 12
FROM 106
OVERALL CONTROL
STATUS
OTHER NODES
300
PROFILE DATA RECEPTION
302
PROFILE DB
304
DRAWING DATA RECEPTION
306
DRAWING DATA DB
308
UI
310
RIP PROCESS
312
COLOR CORRECTION PROCESS
BITMAP DATA
314
PROCESS HISTORY DB
316
REPROCESSING CONTROL
REPROCESSING CONTROL
318
ACCOUNTING INFORMATION CREATION
320
ACCOUNTING INFORMATION DB (ACCOUNTING TABLE)
322
ACCOUNTING INFORMATION TRANSMISSION
ACCOUNTING INFORMATION (PROCESS CONTENTS/STATUS)
324
COMMUNICATION CONTROL
326
AUTHENTICATION PORTION

FIG. 4

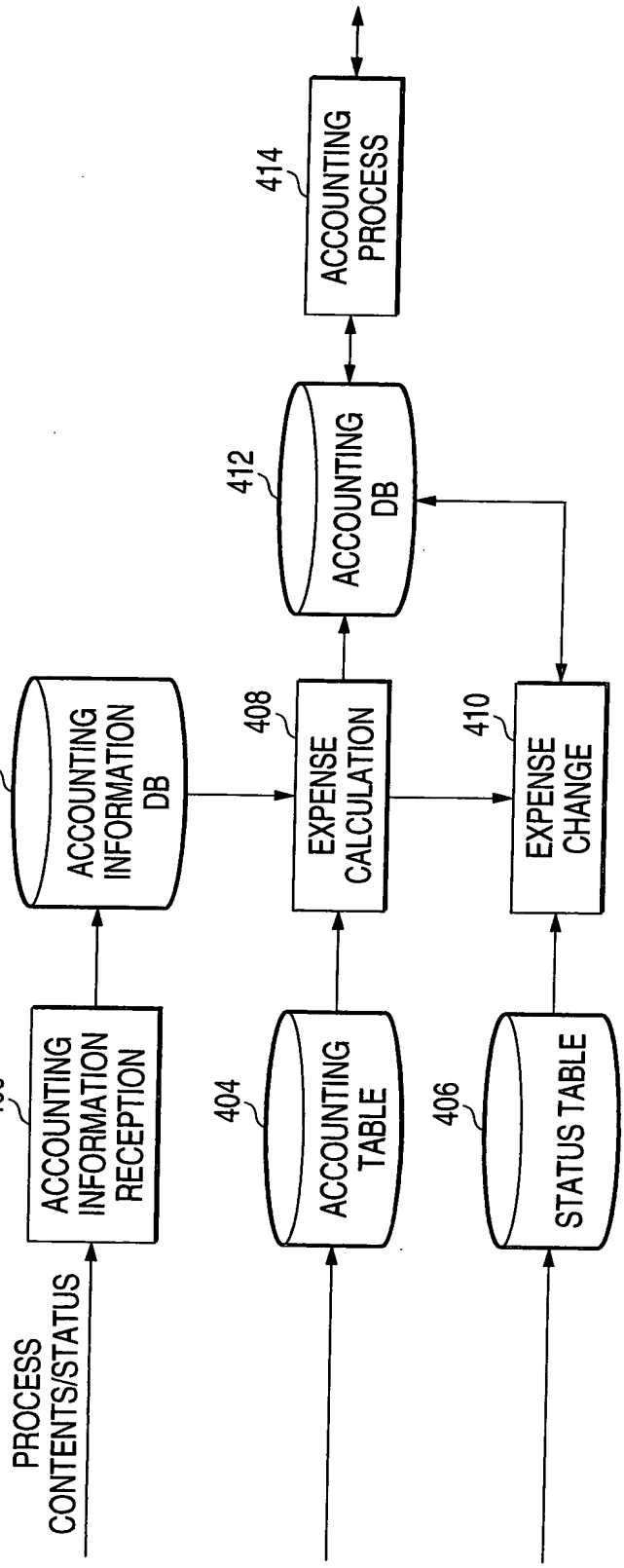

40
PROCESS CONTENTS/STATUS
400
ACCOUNTING INFORMATION RECEPTION
402
ACCOUNTING INFORMATION DB
404
ACCOUNTING TABLE
406
STATUS TABLE
408
EXPENSE CALCULATION
410
EXPENSE CHANGE
412
ACCOUNTING DB
414
ACCOUNTING PROCESS

FIG. 5

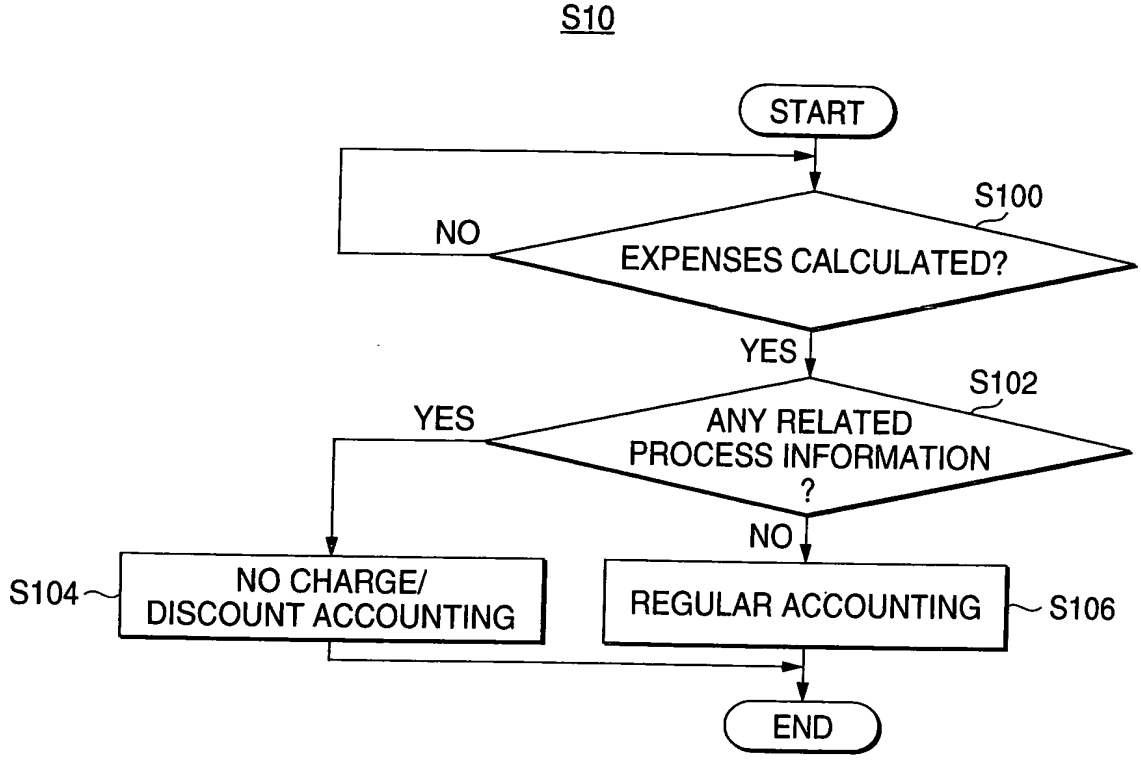

S10
START
S100
NO
EXPENSES CALCULATED?
YES
S102
YES
ANY RELATED PROCESS INFORMATION ?
NO
S104
NO CHARGE/ DISCOUNT ACCOUNTING
REGULAR ACCOUNTING
S106
END

FIG. 6

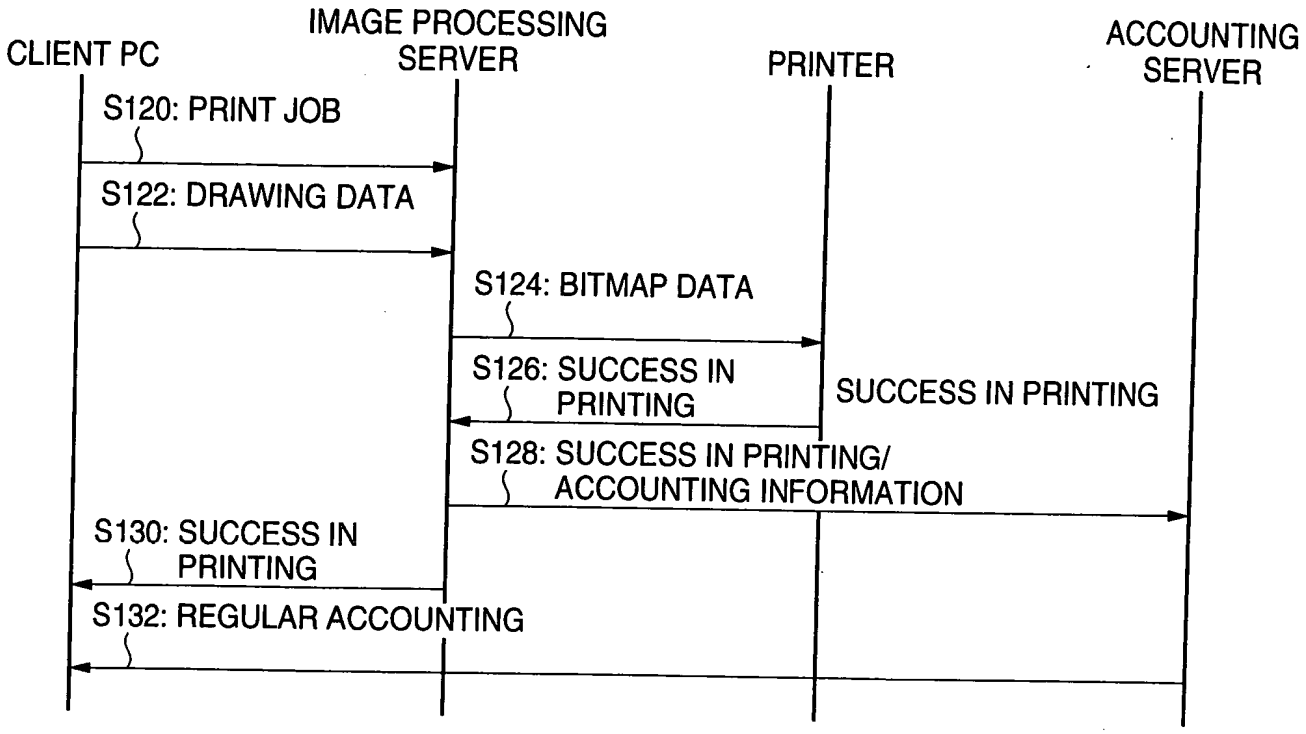

S12
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB
S122: DRAWING DATA
S124: BITMAP DATA
S126: SUCCESS IN PRINTING
SUCCESS IN PRINTING
S128: SUCCESS IN PRINTING/ ACCOUNTING INFORMATION
S130: SUCCESS IN PRINTING
S132: REGULAR ACCOUNTING

FIG. 7

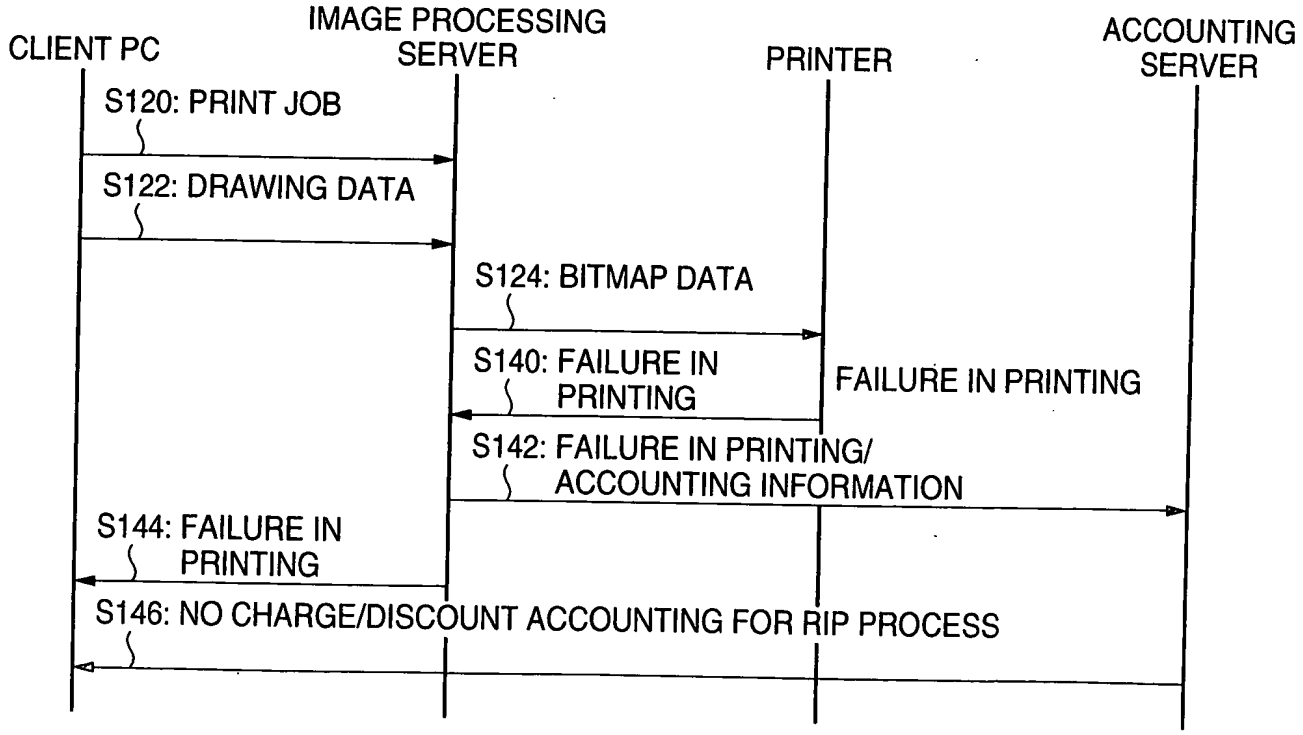

S14
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB
S122: DRAWING DATA
S124: BITMAP DATA
S140: FAILURE IN PRINTING
FAILURE IN PRINTING
S142: FAILURE IN PRINTING/ ACCOUNTING INFORMATION
S144: FAILURE IN PRINTING
S146: NO CHARGE/DISCOUNT ACCOUNTING FOR RIP PROCESS

FIG. 8

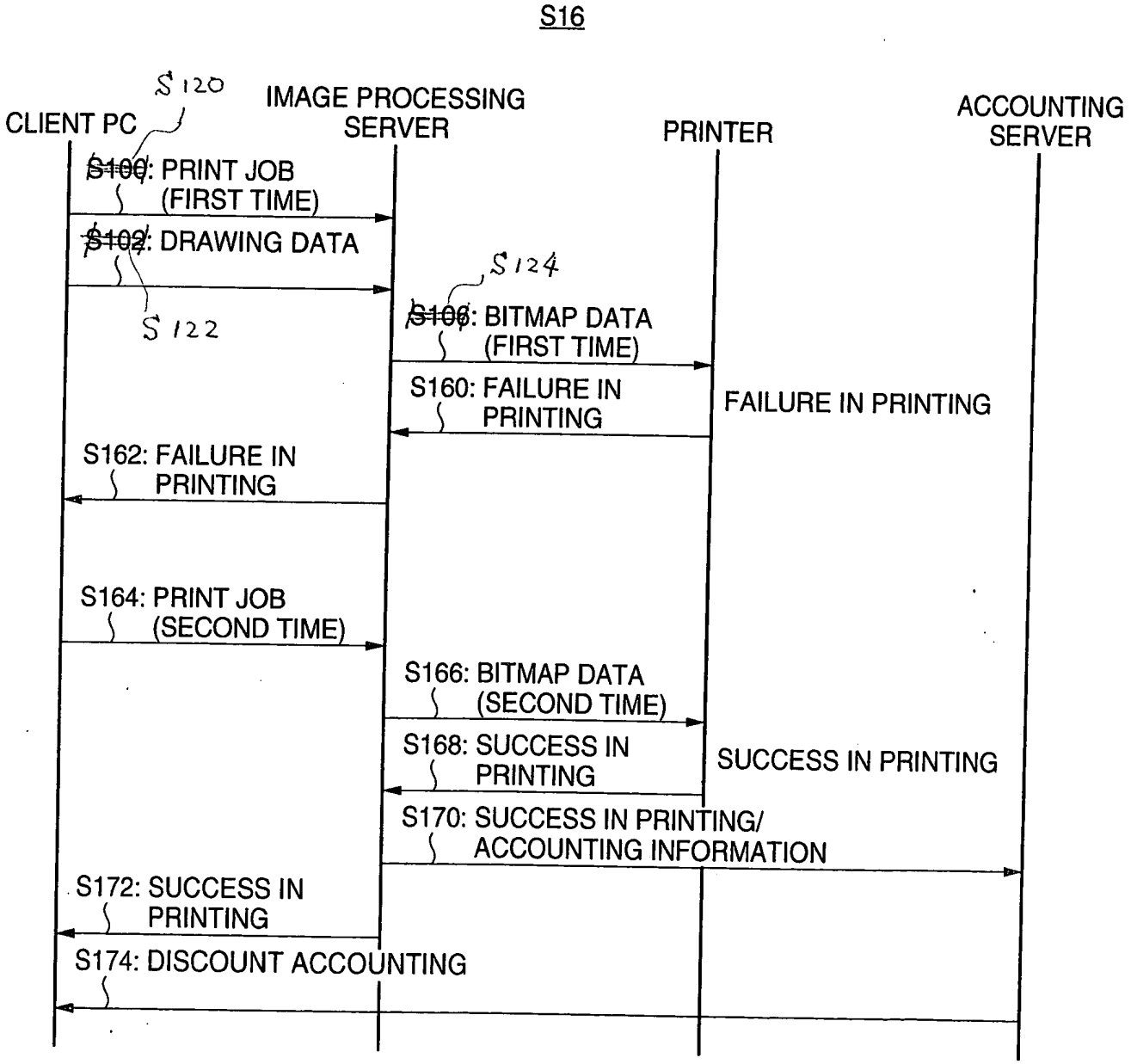

S16
S120
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S100: PRINT JOB (FIRST TIME)
S102: DRAWING DATA
S122
S124
S106: BITMAP DATA (FIRST TIME)
S160: FAILURE IN PRINTING
FAILURE IN PRINTING
S162: FAILURE IN PRINTING
S164: PRINT JOB (SECOND TIME)
S166: BITMAP DATA (SECOND TIME)
S168: SUCCESS IN PRINTING
SUCCESS IN PRINTING
S170: SUCCESS IN PRINTING/ ACCOUNTING INFORMATION
S172: SUCCESS IN PRINTING
S174: DISCOUNT ACCOUNTING

FIG. 9

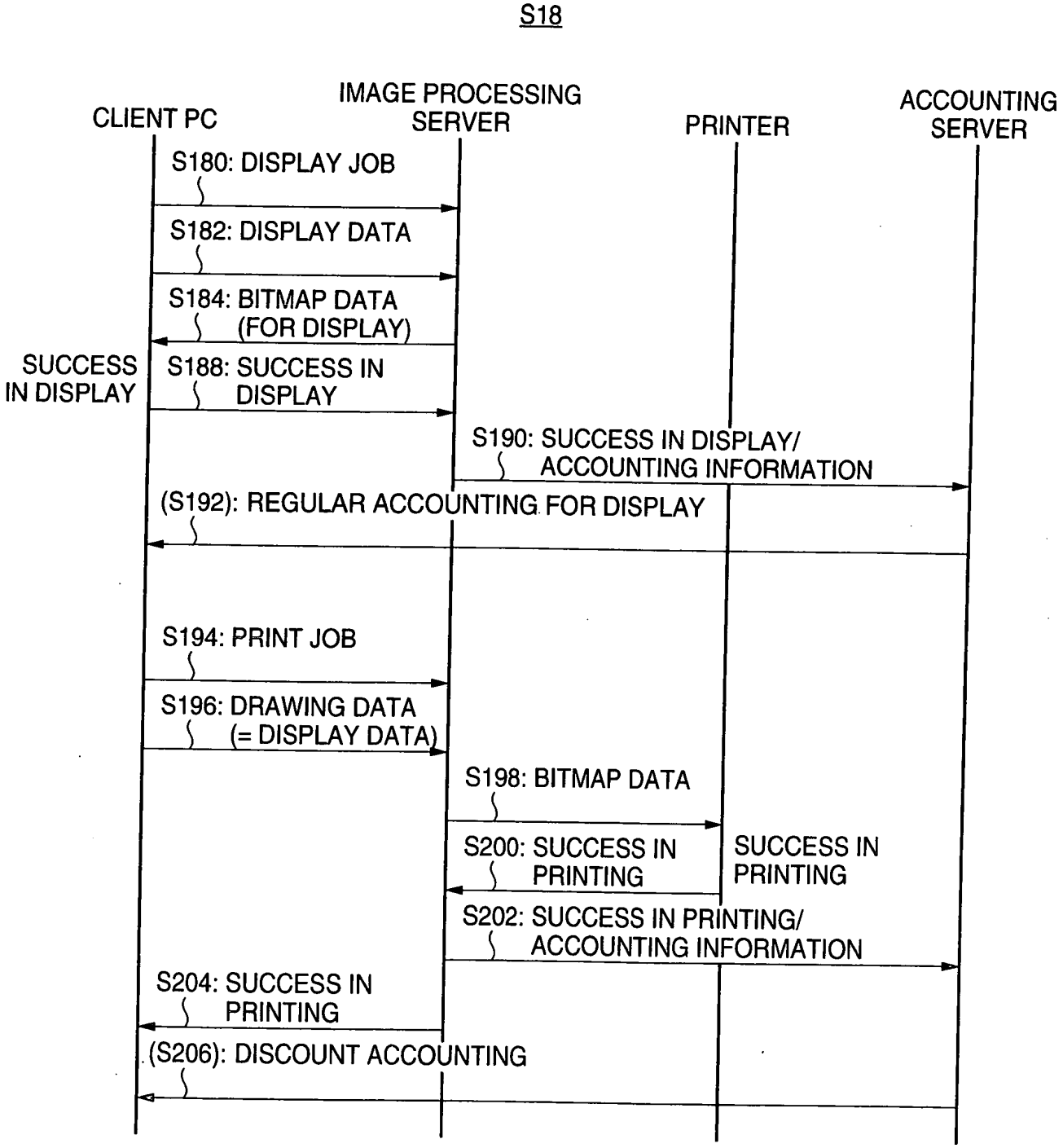

S18
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S180: DISPLAY JOB
S182: DISPLAY DATA
S184: BITMAP DATA (FOR DISPLAY)
SUCCESS IN DISPLAY
S188: SUCCESS IN DISPLAY
S190: SUCCESS IN DISPLAY/ ACCOUNTING INFORMATION
(S192): REGULAR ACCOUNTING FOR DISPLAY
S194: PRINT JOB
S196: DRAWING DATA (= DISPLAY DATA)
S198: BITMAP DATA
S200: SUCCESS IN PRINTING
SUCCESS IN PRINTING
S202: SUCCESS IN PRINTING/ ACCOUNTING INFORMATION
S204: SUCCESS IN PRINTING
(S206): DISCOUNT ACCOUNTING

FIG. 10

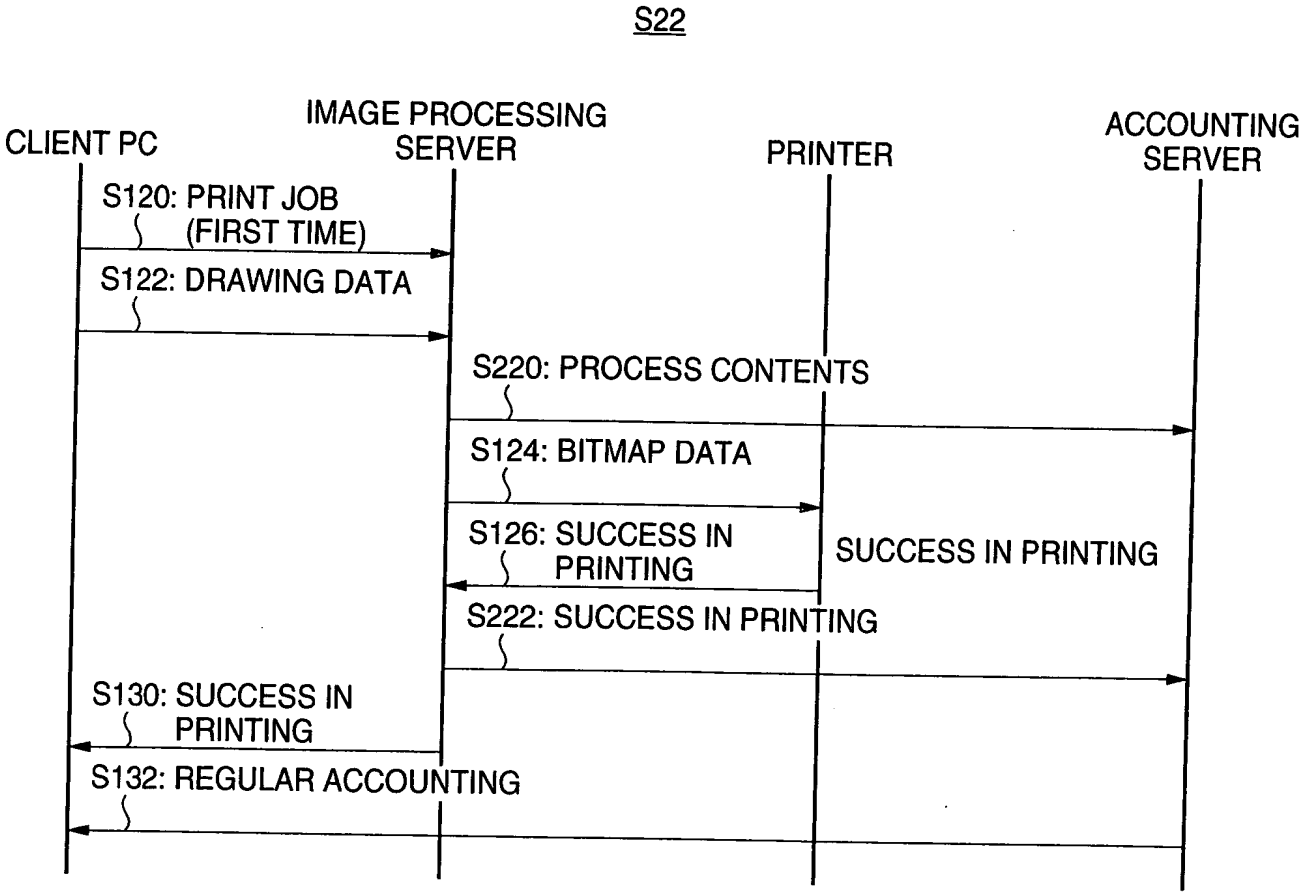

S22
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB (FIRST TIME)
S122: DRAWING DATA
S220: PROCESS CONTENTS
S124: BITMAP DATA
S126: SUCCESS IN PRINTING
SUCCESS IN PRINTING
S222: SUCCESS IN PRINTING
S130: SUCCESS IN PRINTING
S132: REGULAR ACCOUNTING

FIG. 11

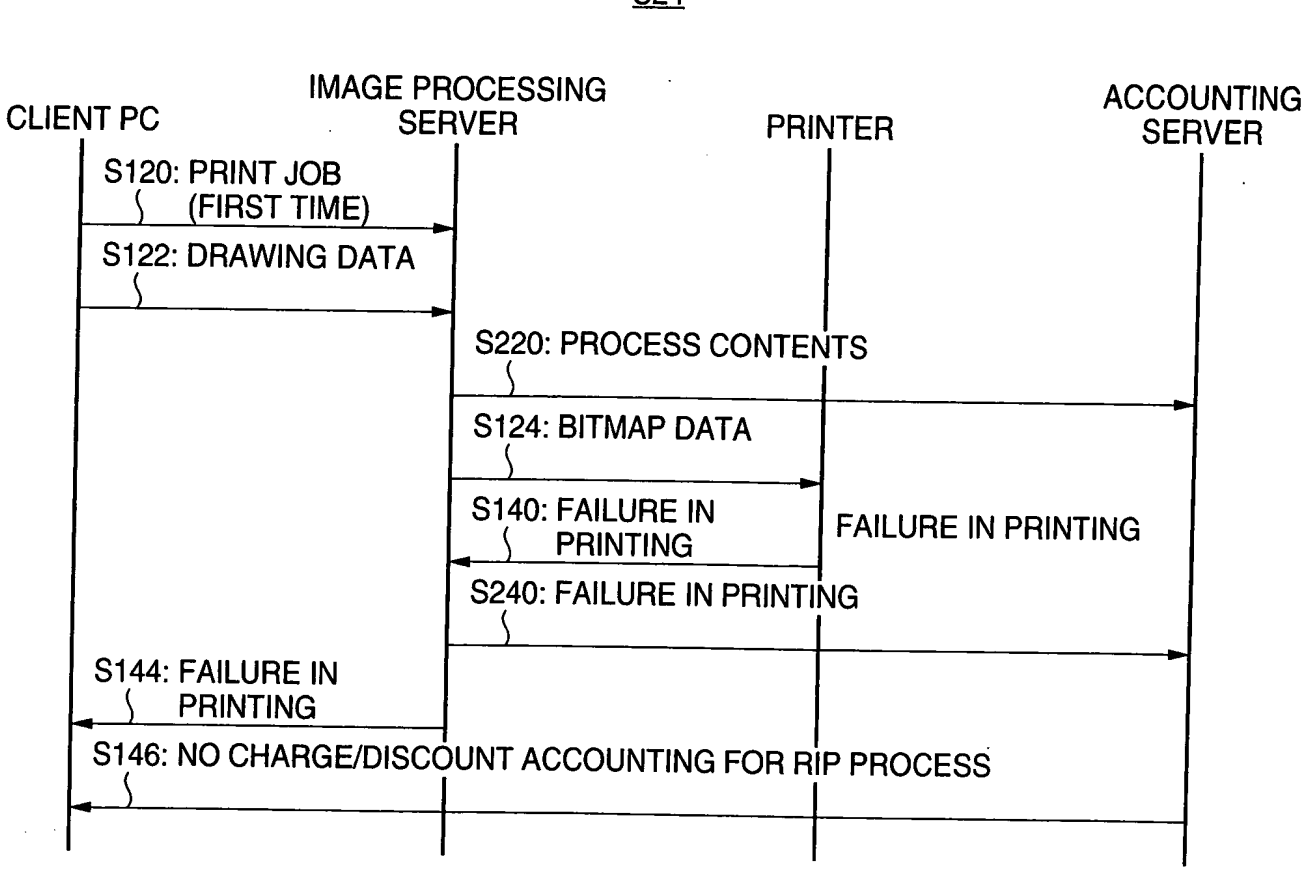

S24
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB (FIRST TIME)
S122: DRAWING DATA
S220: PROCESS CONTENTS
S124: BITMAP DATA
S140: FAILURE IN PRINTING
FAILURE IN PRINTING
S240: FAILURE IN PRINTING
S144: FAILURE IN PRINTING
S146: NO CHARGE/DISCOUNT ACCOUNTING FOR RIP PROCESS

FIG. 12

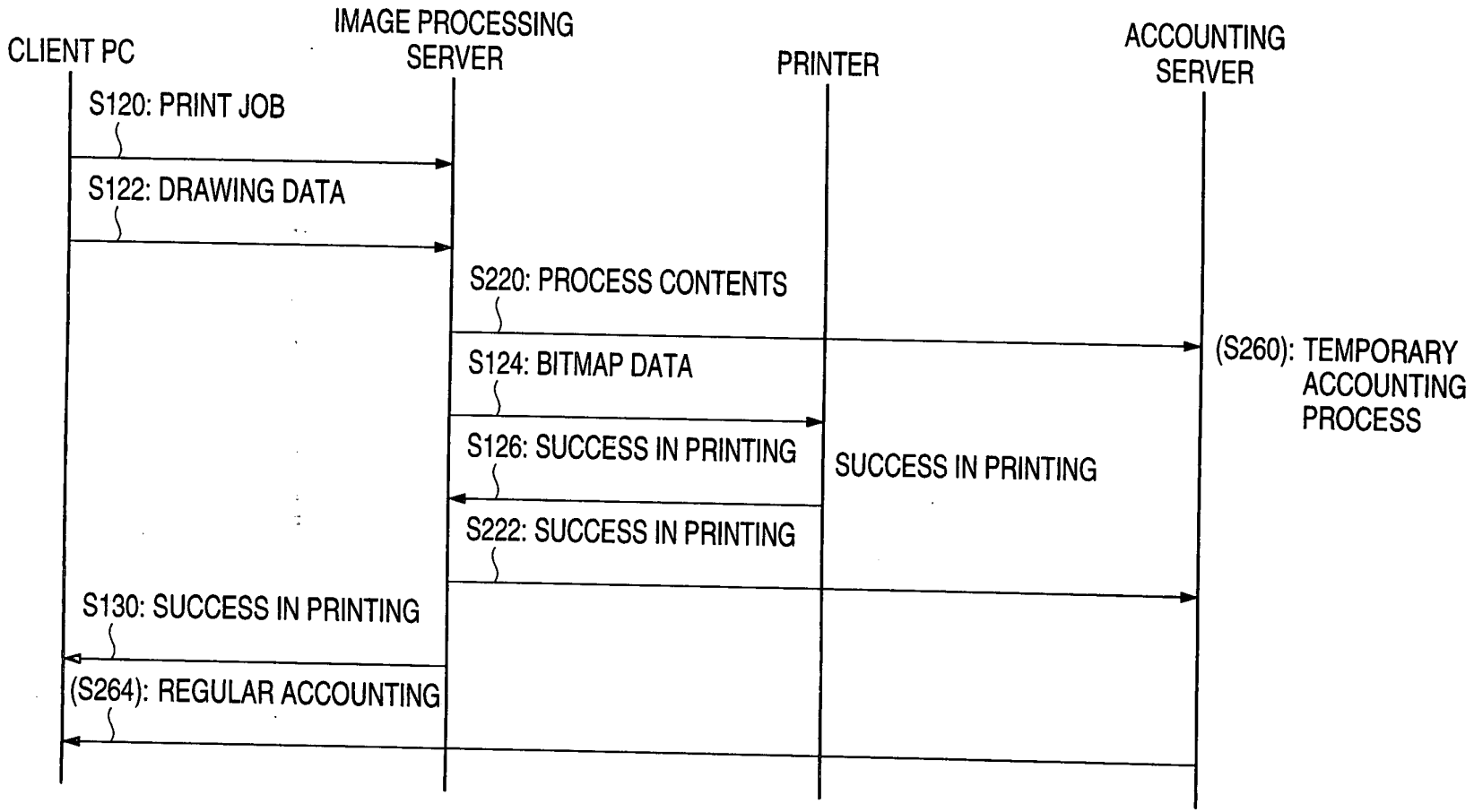

S26
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB
S122: DRAWING DATA
S220: PROCESS CONTENTS
S124: BITMAP DATA
(S260): TEMPORARY ACCOUNTING PROCESS
S126: SUCCESS IN PRINTING
SUCCESS IN PRINTING
S222: SUCCESS IN PRINTING
S130: SUCCESS IN PRINTING
(S264): REGULAR ACCOUNTING

FIG. 13

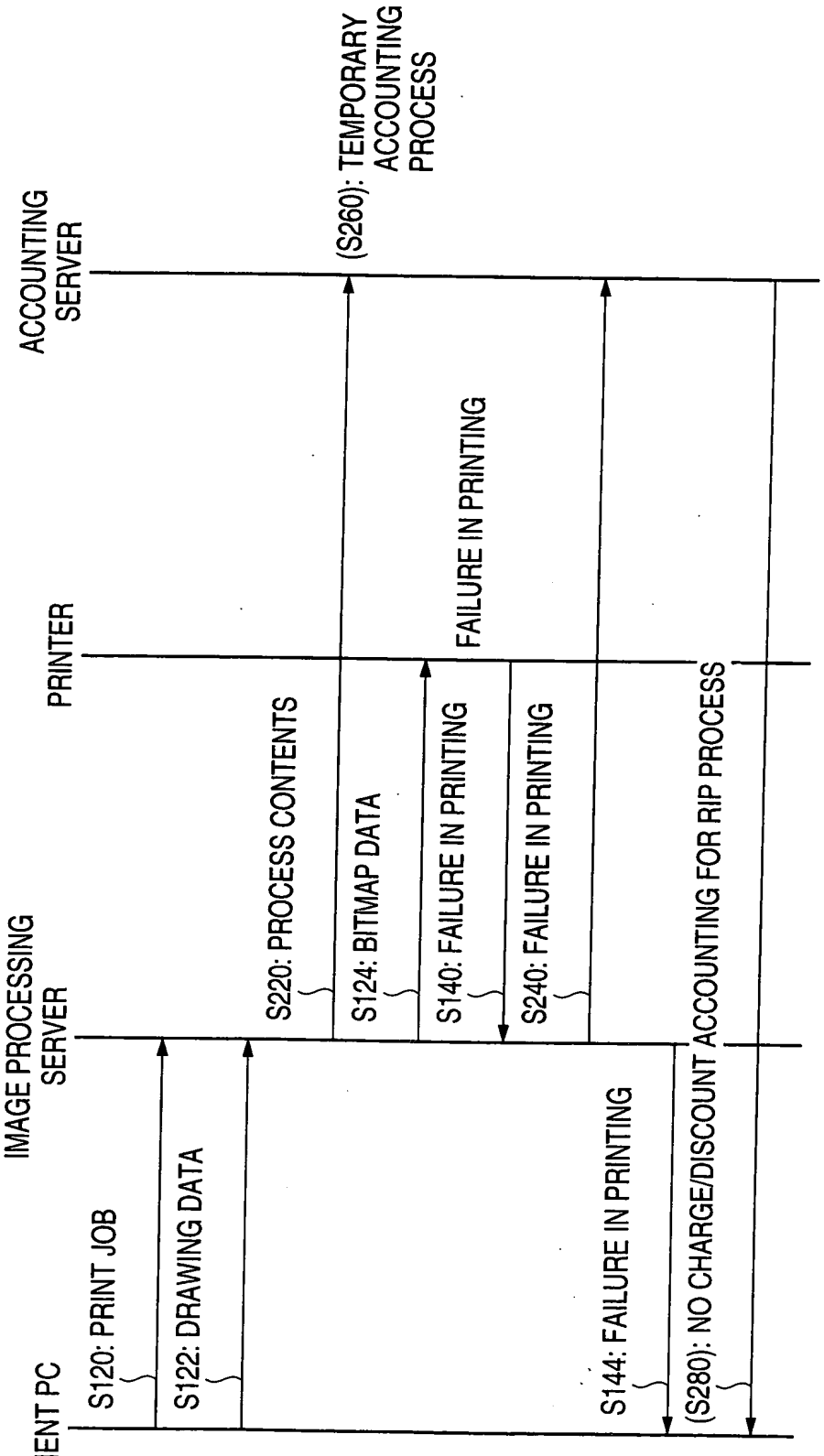

S28
CLIENT PC
IMAGE PROCESSING SERVER
PRINTER
ACCOUNTING SERVER
S120: PRINT JOB
S122: DRAWING DATA
S220: PROCESS CONTENTS
S124: BITMAP DATA
S140: FAILURE IN PRINTING
S240: FAILURE IN PRINTING
FAILURE IN PRINTING
(S260): TEMPORARY ACCOUNTING PROCESS
S144: FAILURE IN PRINTING
(S280): NO CHARGE/DISCOUNT ACCOUNTING FOR RIP PROCESS

FIG. 14

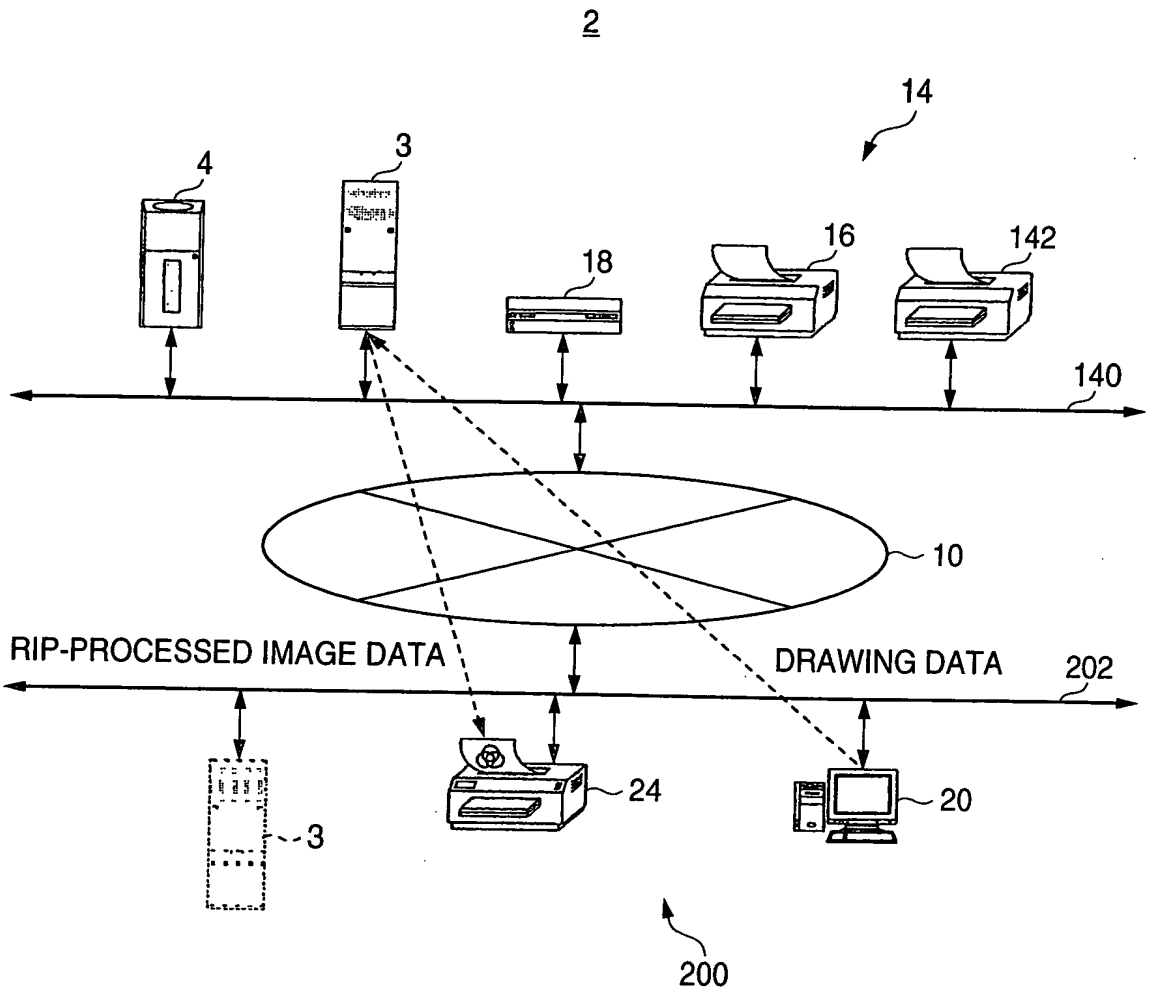

2
14
4
3
18
16
142
140
10
RIP-PROCESSED IMAGE DATA
DRAWING DATA
202
3
24
20
200

FIG. 15

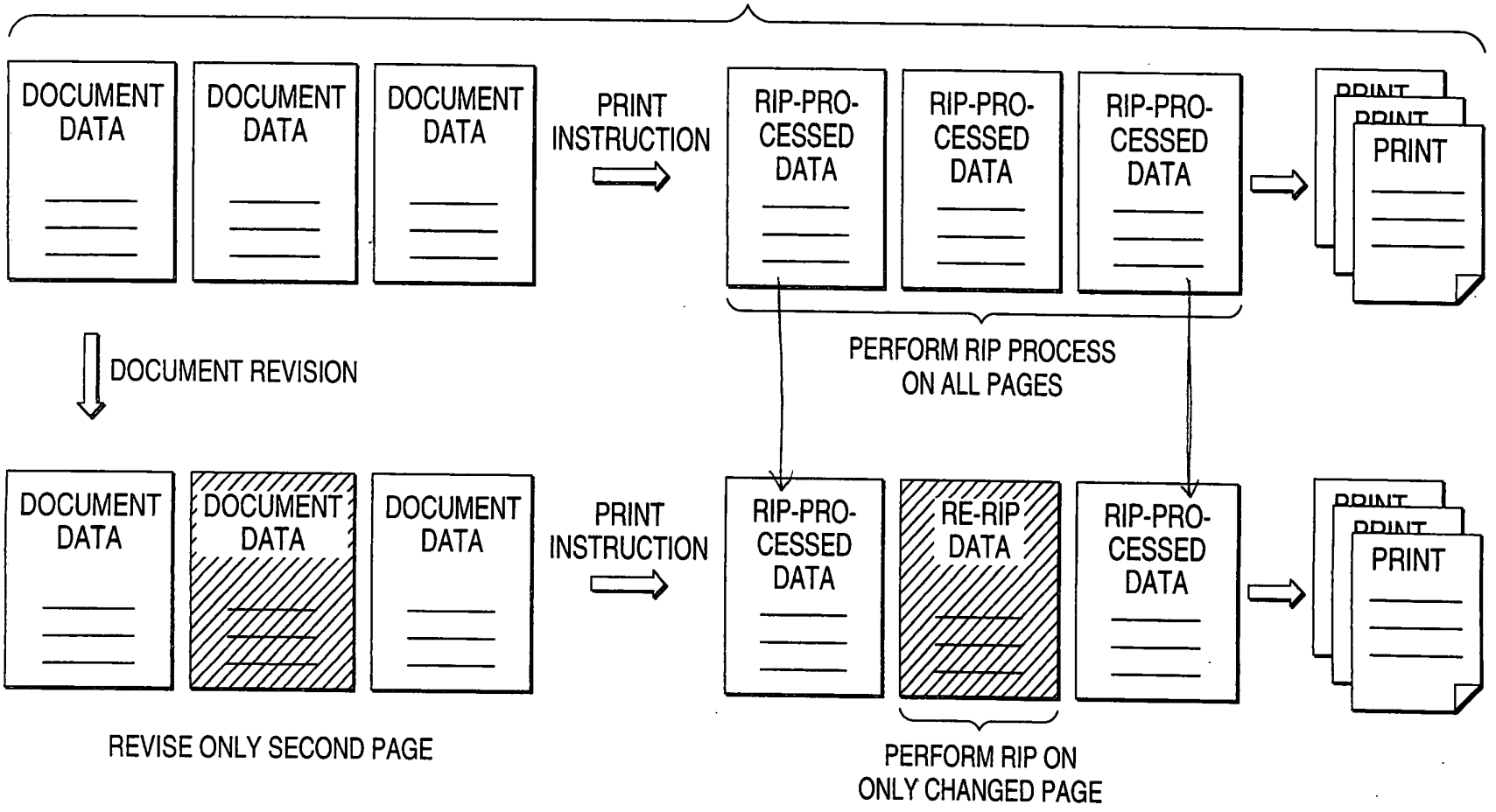

DOCUMENT DATA
DOCUMENT DATA
DOCUMENT DATA
PRINT INSTRUCTION
RIP-PRO-CESSED DATA
RIP-PRO-CESSED DATA
RIP-PRO-CESSED DATA
PRINT
PERFORM RIP PROCESS ON ALL PAGES
DOCUMENT REVISION
DOCUMENT DATA
DOCUMENT DATA
DOCUMENT DATA
PRINT INSTRUCTION
RIP-PRO-CESSED DATA
RE-RIP DATA
RIP-PRO-CESSED DATA
PRINT
REVISE ONLY SECOND PAGE
PERFORM RIP ON ONLY CHANGED PAGE

FIG. 16

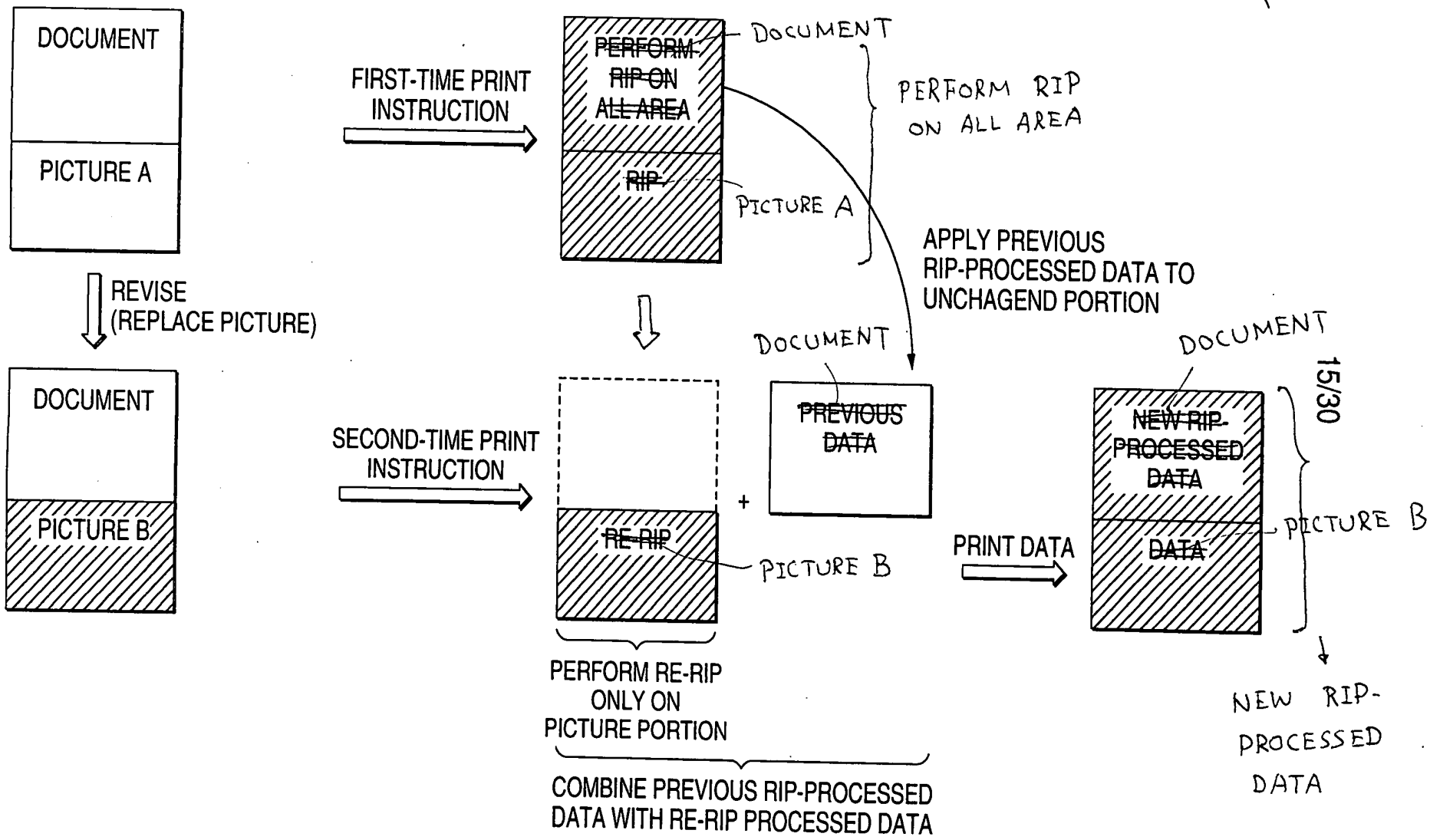

DOCUMENT
PICTURE A
REVISE
(REPLACE PICTURE)
DOCUMENT
PICTURE B
FIRST-TIME PRINT INSTRUCTION
PERFORM RIP ON ALL AREA
RIP
DOCUMENT
PERFORM RIP ON ALL AREA
PICTURE A
APPLY PREVIOUS RIP-PROCESSED DATA TO UNCHAGEND PORTION
SECOND-TIME PRINT INSTRUCTION
RE-RIP
PICTURE B
DOCUMENT
PREVIOUS DATA
+
PERFORM RE-RIP ONLY ON PICTURE PORTION
COMBINE PREVIOUS RIP-PROCESSED DATA WITH RE-RIP PROCESSED DATA
PRINT DATA
DOCUMENT
NEW RIP-PROCESSED DATA
DATA
PICTURE B
NEW RIP-PROCESSED DATA

FIG. 17

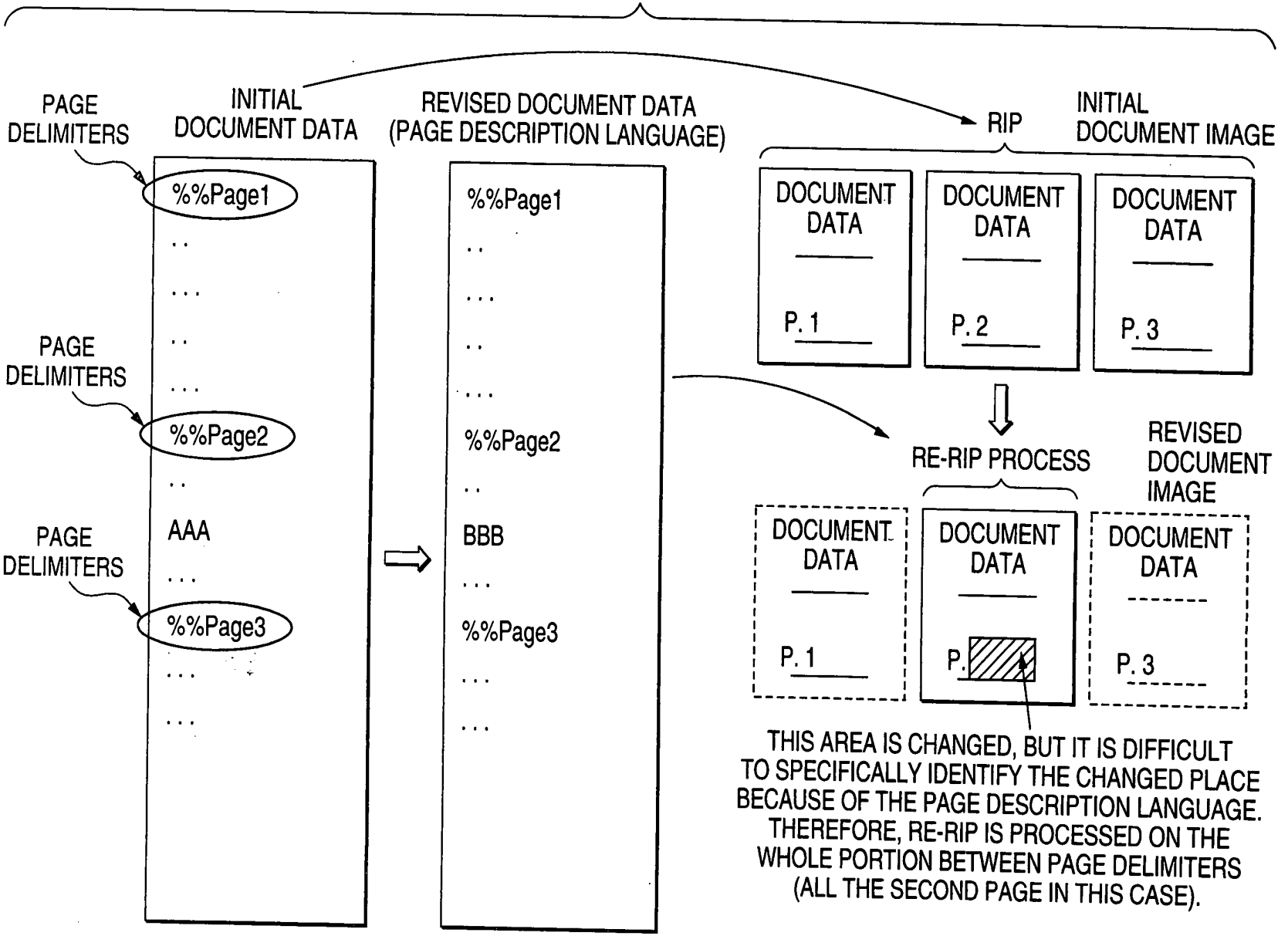

PAGE DELIMITERS
INITIAL DOCUMENT DATA
REVISED DOCUMENT DATA (PAGE DESCRIPTION LANGUAGE)
RIP
INITIAL DOCUMENT IMAGE
%%Page1
%%Page2
%%Page3
AAA
BBB
DOCUMENT DATA
P. 1
P. 2
P. 3
RE-RIP PROCESS
REVISED DOCUMENT IMAGE
THIS AREA IS CHANGED, BUT IT IS DIFFICULT TO SPECIFICALLY IDENTIFY THE CHANGED PLACE BECAUSE OF THE PAGE DESCRIPTION LANGUAGE. THEREFORE, RE-RIP IS PROCESSED ON THE WHOLE PORTION BETWEEN PAGE DELIMITERS (ALL THE SECOND PAGE IN THIS CASE).

FIG. 18

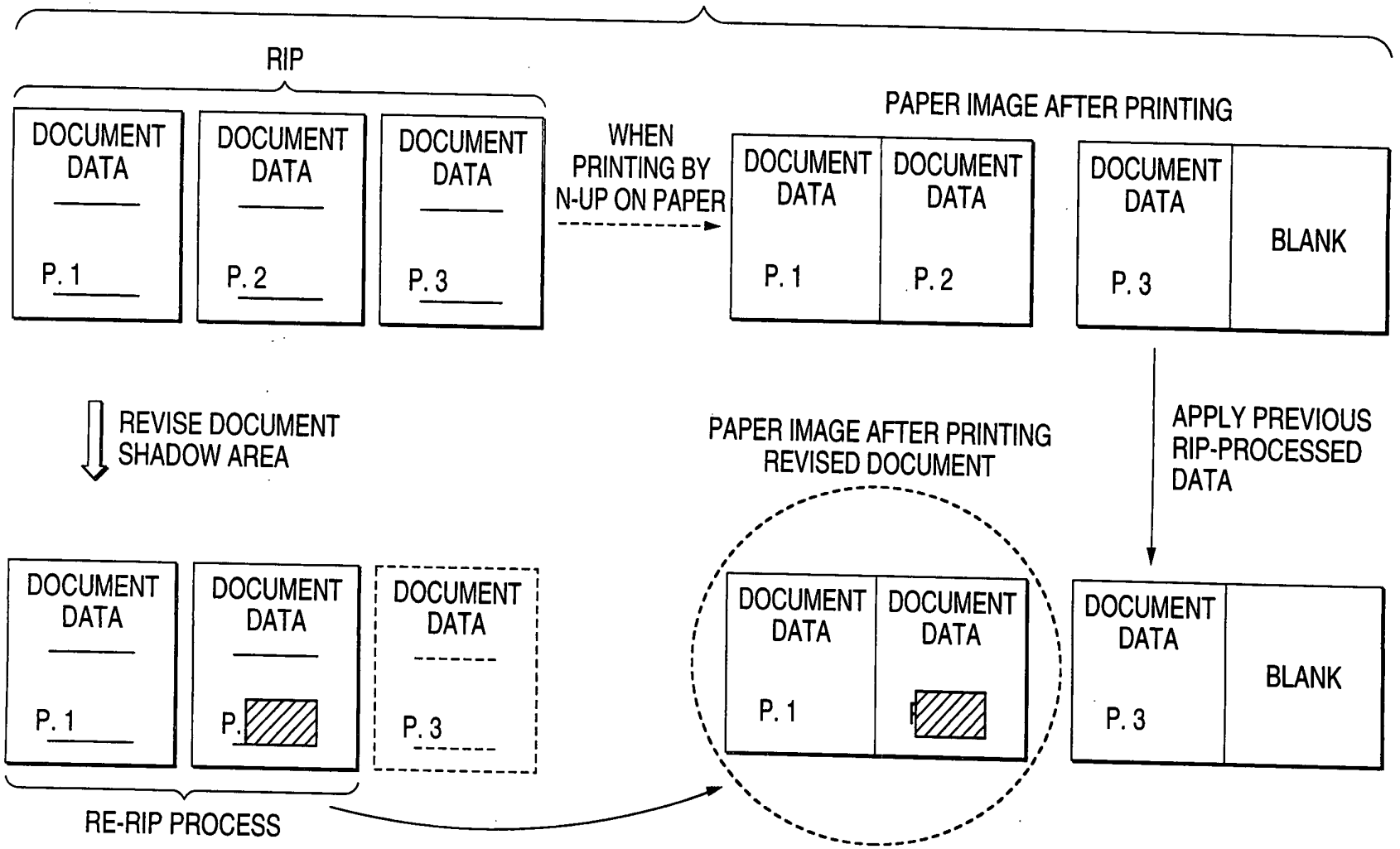

RIP
DOCUMENT DATA
P. 1
DOCUMENT DATA
P. 2
DOCUMENT DATA
P. 3
WHEN PRINTING BY N-UP ON PAPER
PAPER IMAGE AFTER PRINTING
DOCUMENT DATA
P. 1
DOCUMENT DATA
P. 2
DOCUMENT DATA
P. 3
BLANK
REVISE DOCUMENT SHADOW AREA
APPLY PREVIOUS RIP-PROCESSED DATA
PAPER IMAGE AFTER PRINTING REVISED DOCUMENT
DOCUMENT DATA
P. 1
DOCUMENT DATA
P.
DOCUMENT DATA
P. 3
DOCUMENT DATA
P. 1
DOCUMENT DATA
DOCUMENT DATA
P. 3
BLANK
RE-RIP PROCESS

FIG. 19

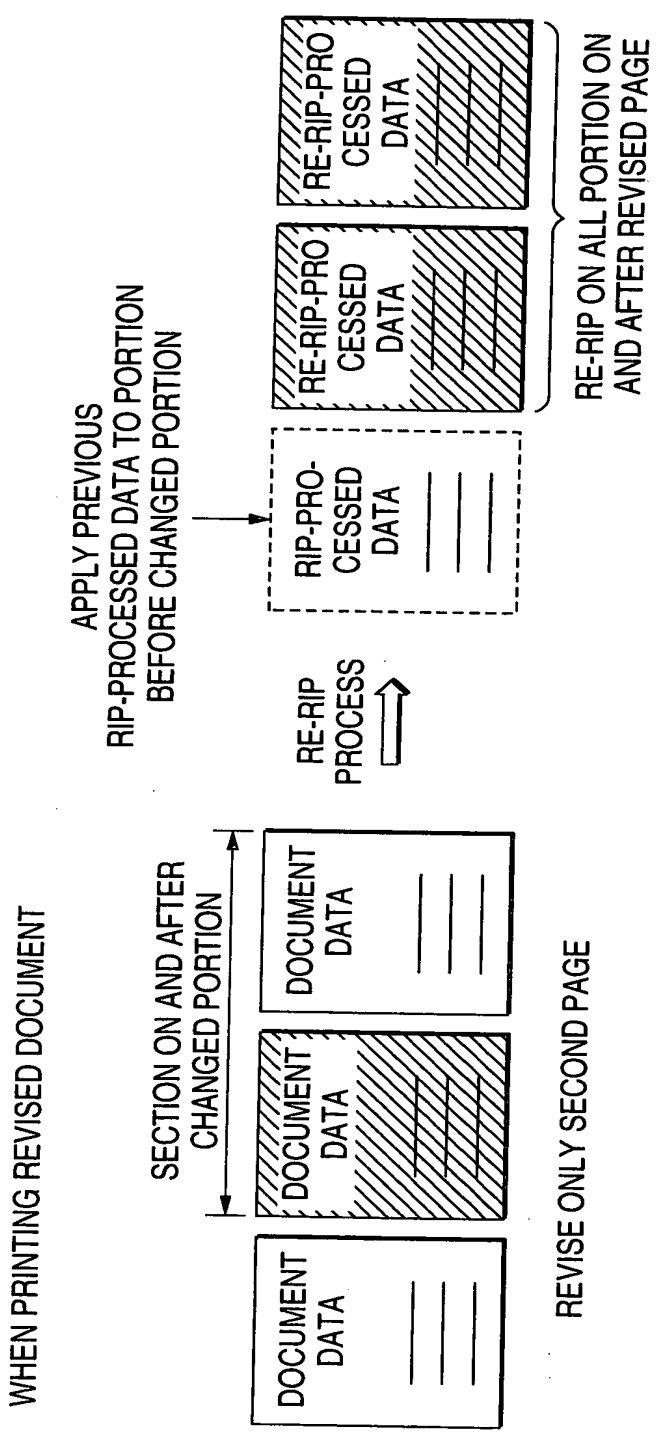

WHEN PRINTING REVISED DOCUMENT
DOCUMENT DATA
SECTION ON AND AFTER CHANGED PORTION
DOCUMENT DATA
DOCUMENT DATA
REVISE ONLY SECOND PAGE
RE-RIP PROCESS
APPLY PREVIOUS RIP-PROCESSED DATA TO PORTION BEFORE CHANGED PORTION
RIP-PRO-CESSED DATA
RE-RIP-PRO CESSED DATA
RE-RIP-PRO CESSED DATA
RE-RIP ON ALL PORTION ON AND AFTER REVISED PAGE

FIG. 20

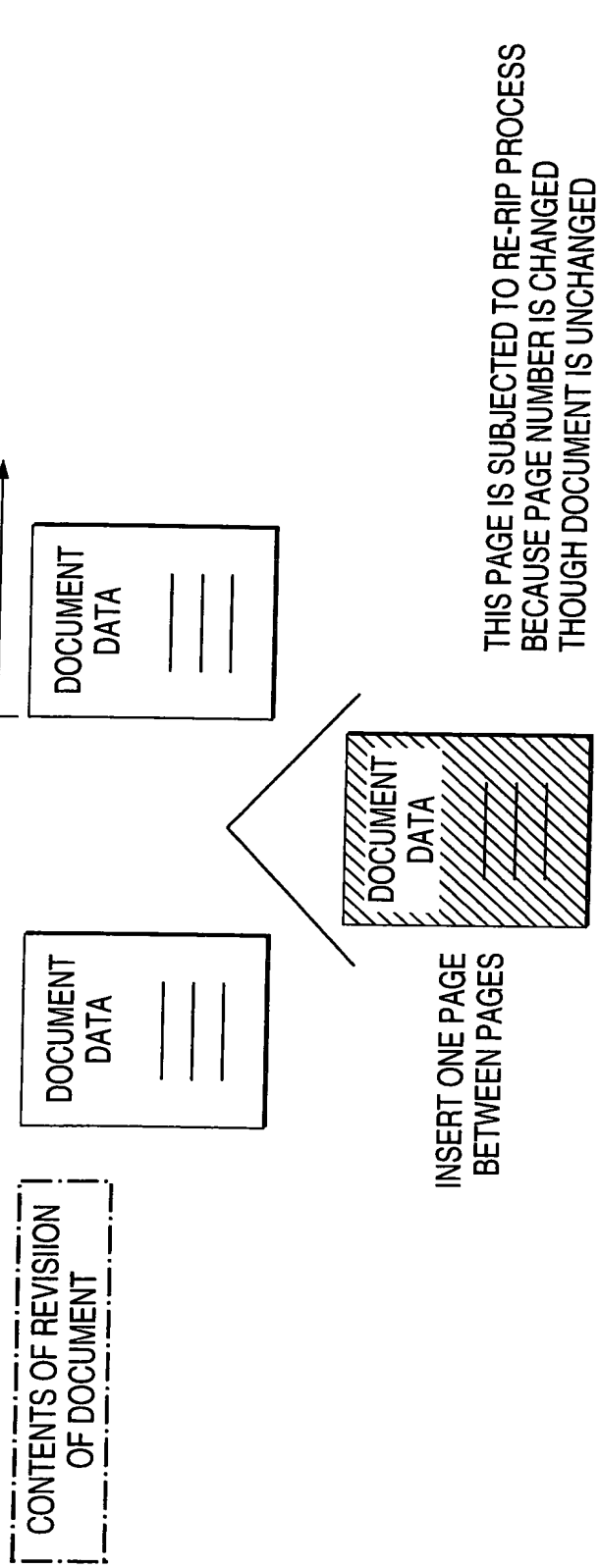

CONTENTS OF REVISIION OF DOCUMENT
DOCUMENT DATA
INSERT ONE PAGE BETWEEN PAGES
DOCUMENT DATA
THIS PAGE IS SUBJECTED TO RE-RIP PROCESS BECAUSE PAGE NUMBER IS CHANGED THOUGH DOCUMENT IS UNCHANGED
DOCUMENT DATA
PAGE NUMBERS ON AND AFTER THIS PAGE ARE SHIFTED FROM THOSE IN PREVIOUS PRINTING DUE TO INSERTION

FIG. 21

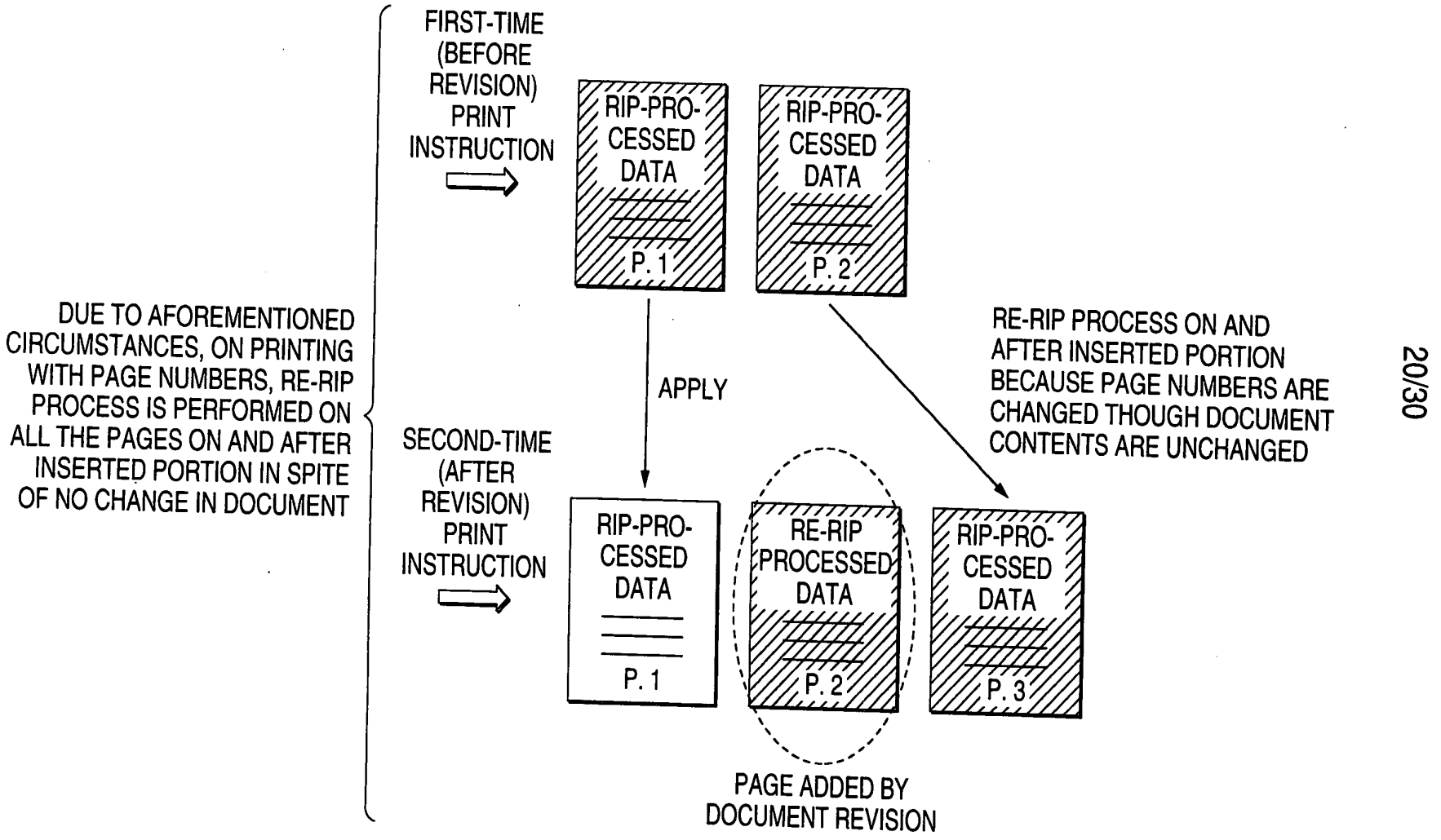

FIRST-TIME (BEFORE REVISION) PRINT INSTRUCTION
RIP-PRO-CESSED DATA
P. 1
RIP-PRO-CESSED DATA
P. 2
APPLY
RE-RIP PROCESS ON AND AFTER INSERTED PORTION BECAUSE PAGE NUMBERS ARE CHANGED THOUGH DOCUMENT CONTENTS ARE UNCHANGED
DUE TO AFOREMENTIONED CIRCUMSTANCES, ON PRINTING WITH PAGE NUMBERS, RE-RIP PROCESS IS PERFORMED ON ALL THE PAGES ON AND AFTER INSERTED PORTION IN SPITE OF NO CHANGE IN DOCUMENT
SECOND-TIME (AFTER REVISION) PRINT INSTRUCTION
RIP-PRO-CESSED DATA
P. 1
RE-RIP PROCESSED DATA
P. 2
RIP-PRO-CESSED DATA
P. 3
PAGE ADDED BY DOCUMENT REVISION

FIG. 22

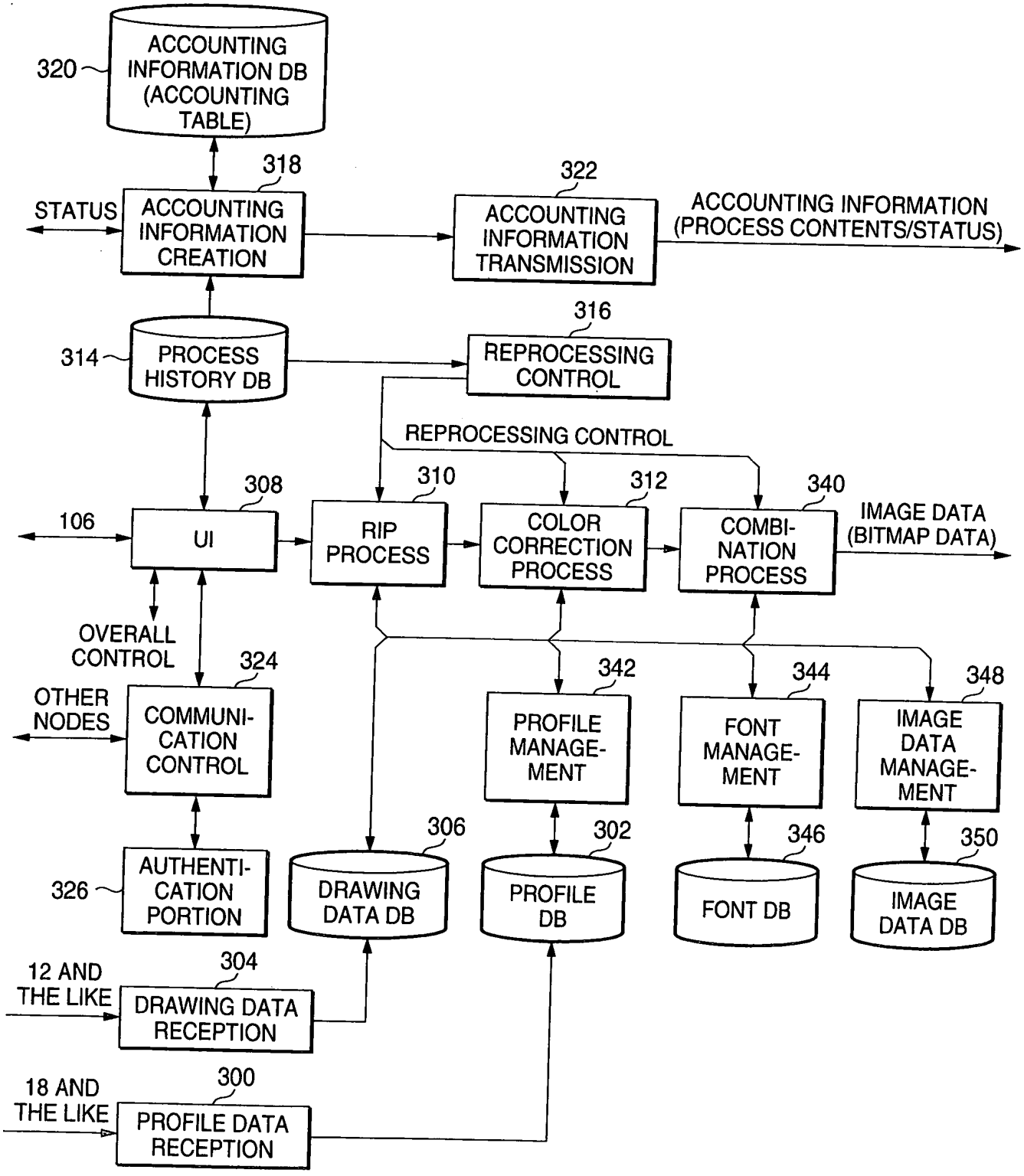

34
320
ACCOUNTING INFORMATION DB (ACCOUNTING TABLE)
318
322
STATUS
ACCOUNTING INFORMATION CREATION
ACCOUNTING INFORMATION TRANSMISSION
ACCOUNTING INFORMATION (PROCESS CONTENTS/STATUS)
316
314
PROCESS HISTORY DB
REPROCESSING CONTROL
REPROCESSING CONTROL
308
310
312
340
106
UI
RIP PROCESS
COLOR CORRECTION PROCESS
COMBI-NATION PROCESS
IMAGE DATA (BITMAP DATA)
OVERALL CONTROL
324
342
344
348
OTHER NODES
COMMUNI-CATION CONTROL
PROFILE MANAGE-MENT
FONT MANAGE-MENT
IMAGE DATA MANAGE-MENT
306
302
346
350
326
AUTHENTI-CATION PORTION
DRAWING DATA DB
PROFILE DB
FONT DB
IMAGE DATA DB
12 AND THE LIKE
304
DRAWING DATA RECEPTION
18 AND THE LIKE
300
PROFILE DATA RECEPTION

FIG. 23

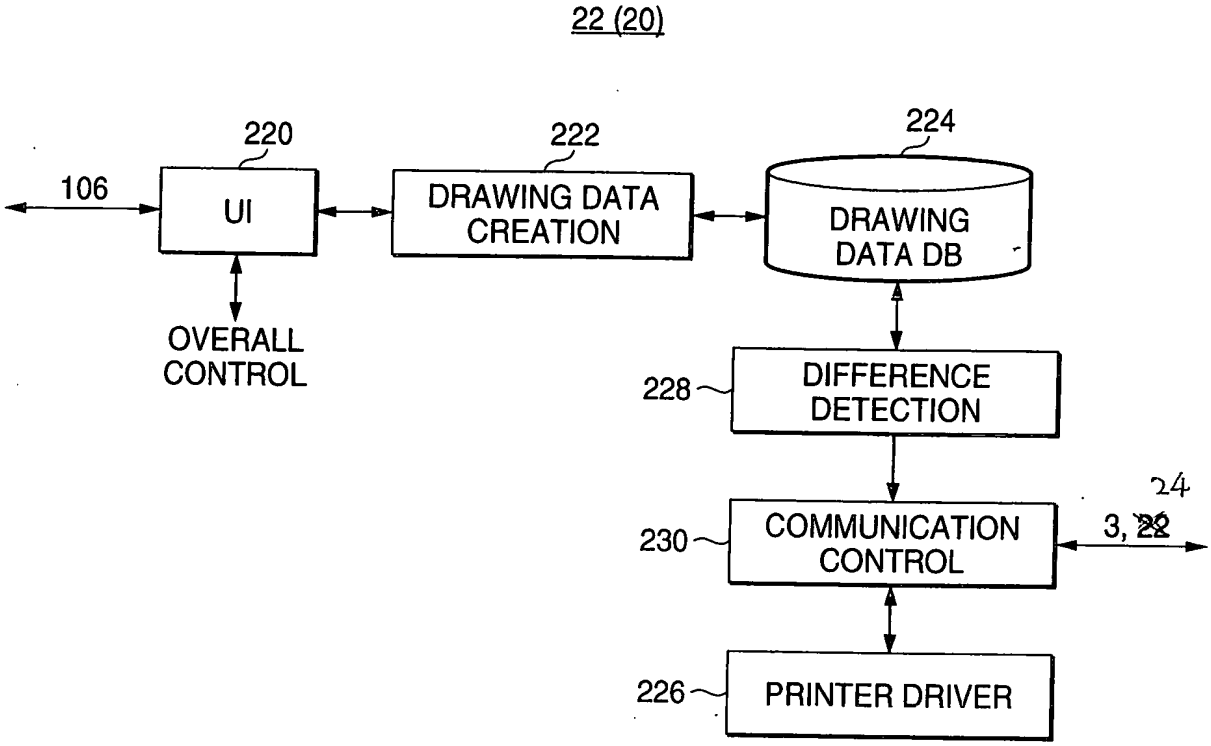

22 (20)
220
222
224
106
UI
DRAWING DATA CREATION
DRAWING DATA DB
OVERALL CONTROL
228
DIFFERENCE DETECTION
230
COMMUNICATION CONTROL
24
3, 22
226
PRINTER DRIVER

FIG. 24

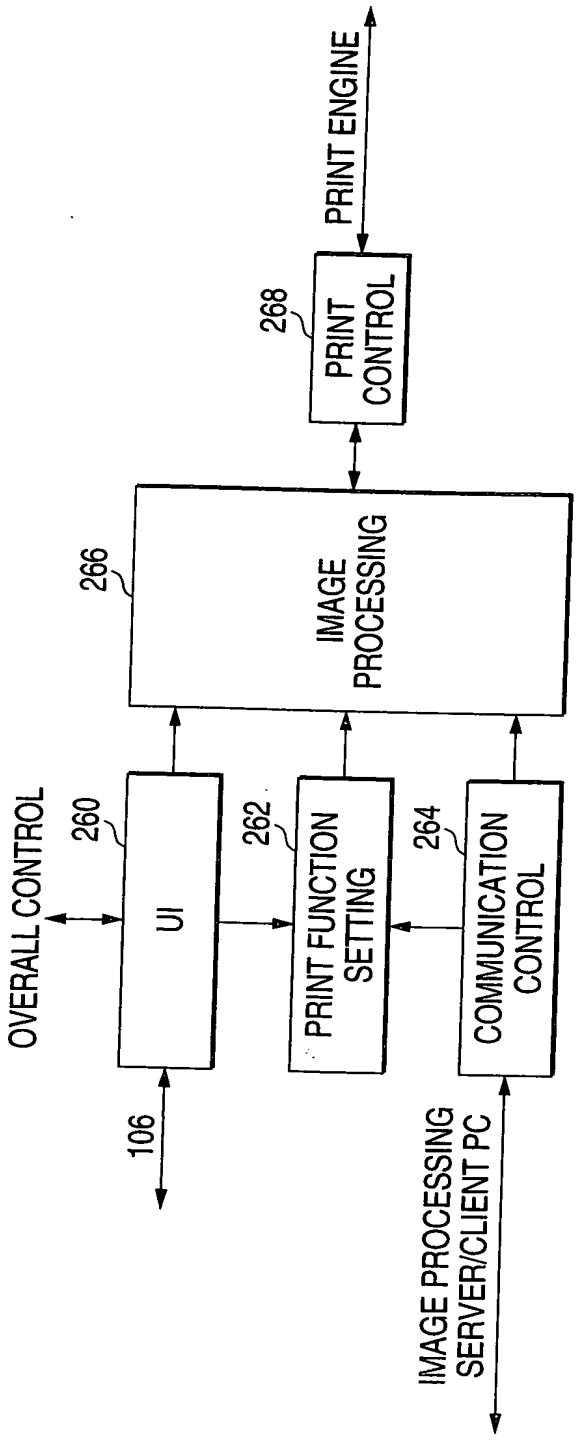

26 (24)
OVERALL CONTROL
260
UI
262
PRINT FUNCTION SETTING
264
COMMUNICATION CONTROL
266
IMAGE PROCESSING
268
PRINT CONTROL
PRINT ENGINE
106
IMAGE PROCESSING SERVER/CLIENT PC

FIG. 25

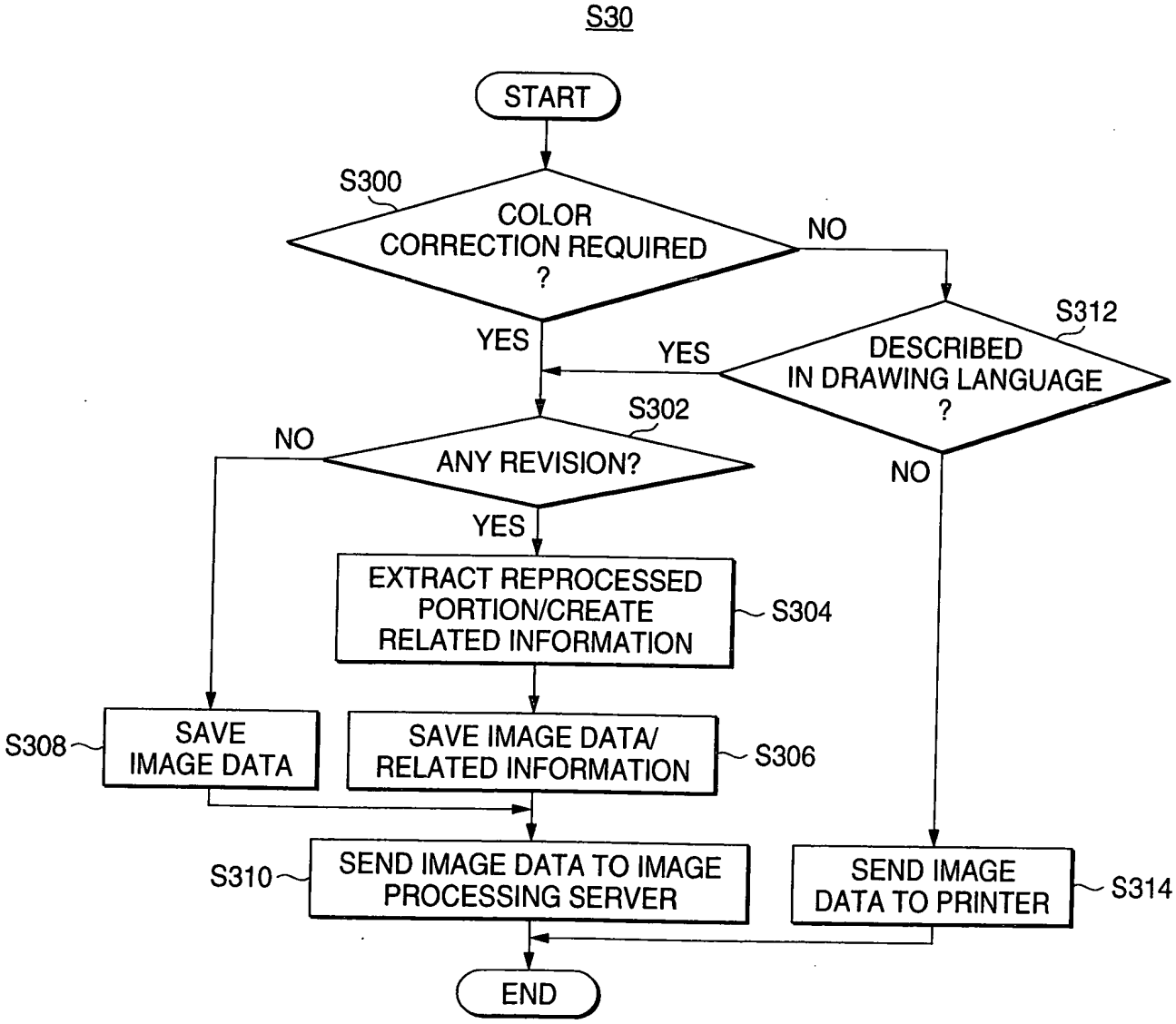

S30
START
S300
COLOR CORRECTION REQUIRED ?
NO
YES
S312
DESCRIBED IN DRAWING LANGUAGE ?
YES
NO
S302
ANY REVISION?
NO
YES
EXTRACT REPROCESSED PORTION/CREATE RELATED INFORMATION
S304
S308
SAVE IMAGE DATA
SAVE IMAGE DATA/ RELATED INFORMATION
S306
S310
SEND IMAGE DATA TO IMAGE PROCESSING SERVER
SEND IMAGE DATA TO PRINTER
S314
END

FIG. 26

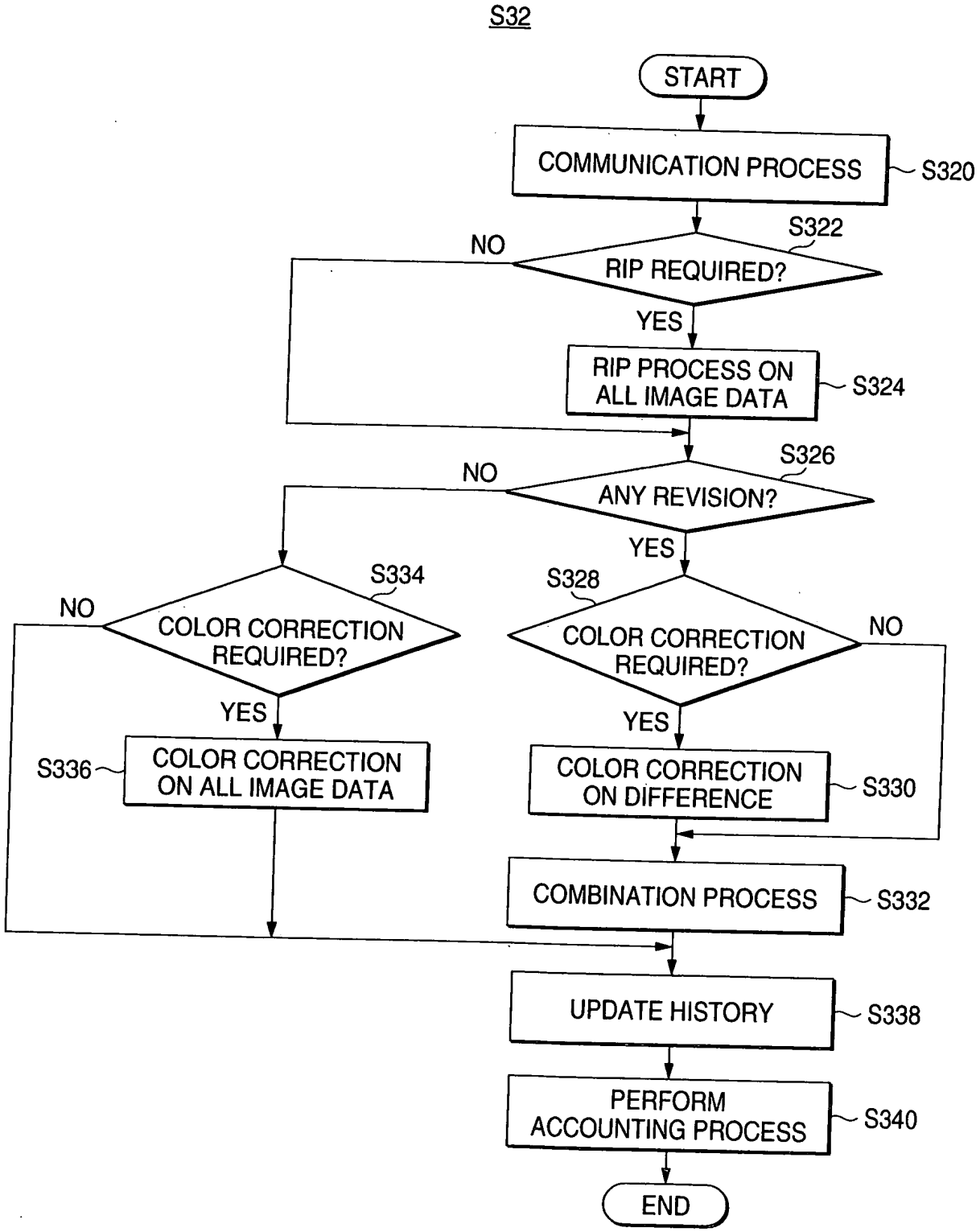

S32
START
COMMUNICATION PROCESS
S320
S322
NO
RIP REQUIRED?
YES
RIP PROCESS ON ALL IMAGE DATA
S324
S326
NO
ANY REVISION?
YES
S334
S328
NO
COLOR CORRECTION REQUIRED?
COLOR CORRECTION REQUIRED?
NO
YES
YES
S336
COLOR CORRECTION ON ALL IMAGE DATA
COLOR CORRECTION ON DIFFERENCE
S330
COMBINATION PROCESS
S332
UPDATE HISTORY
S338
PERFORM ACCOUNTING PROCESS
S340
END

FIG. 27

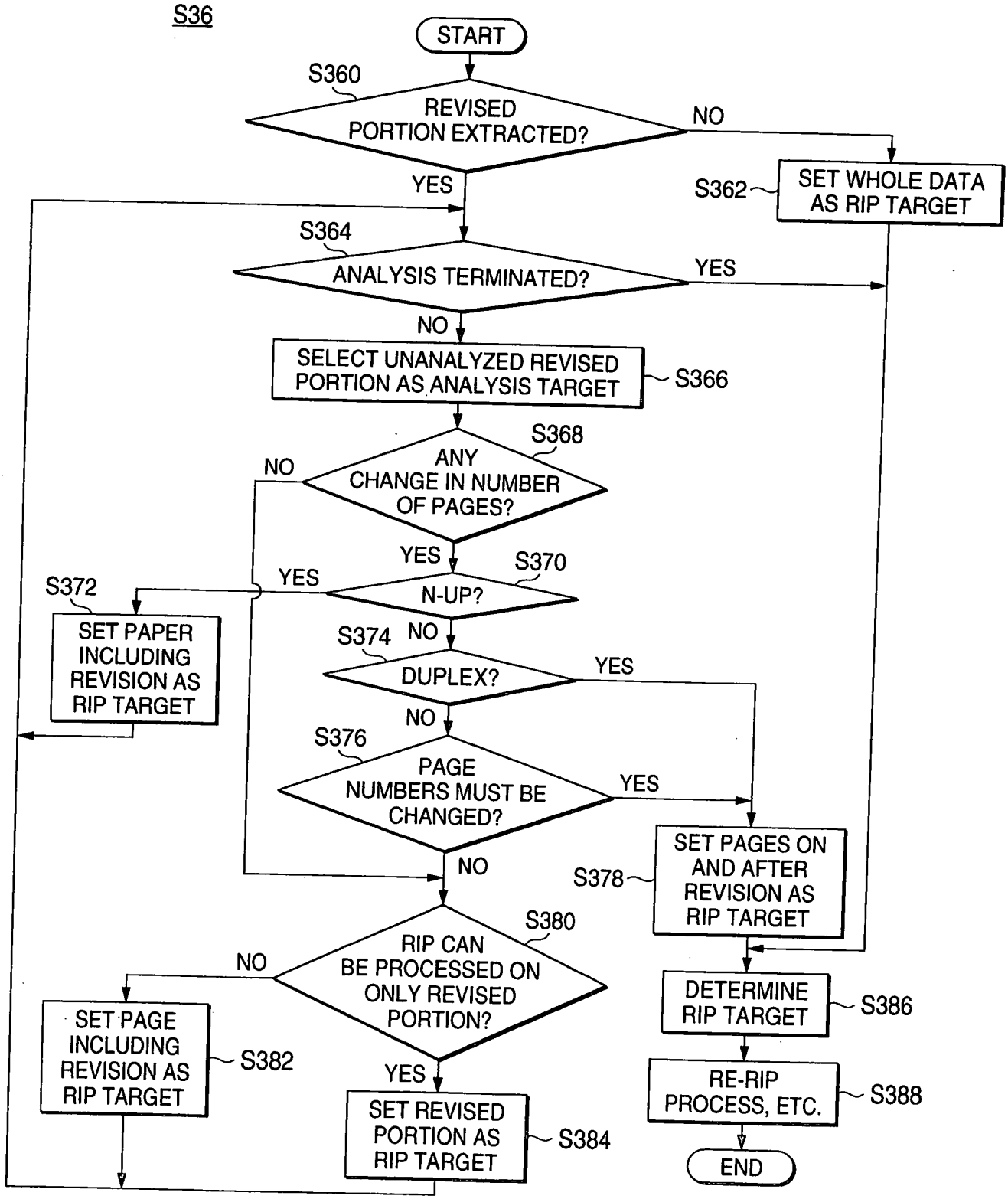

S36
START
S360
REVISED PORTION EXTRACTED?
NO
YES
S362
SET WHOLE DATA AS RIP TARGET
S364
ANALYSIS TERMINATED?
YES
NO
SELECT UNANALYZED REVISED PORTION AS ANALYSIS TARGET
S366
S368
ANY CHANGE IN NUMBER OF PAGES?
NO
YES
S370
N-UP?
YES
S372
SET PAPER INCLUDING REVISION AS RIP TARGET
S374
DUPLEX?
NO
YES
S376
PAGE NUMBERS MUST BE CHANGED?
NO
YES
S378
SET PAGES ON AND AFTER REVISION AS RIP TARGET
S380
RIP CAN BE PROCESSED ON ONLY REVISED PORTION?
NO
YES
SET PAGE INCLUDING REVISION AS RIP TARGET
S382
SET REVISED PORTION AS RIP TARGET
S384
DETERMINE RIP TARGET
S386
RE-RIP PROCESS, ETC.
S388
END

FIG. 28

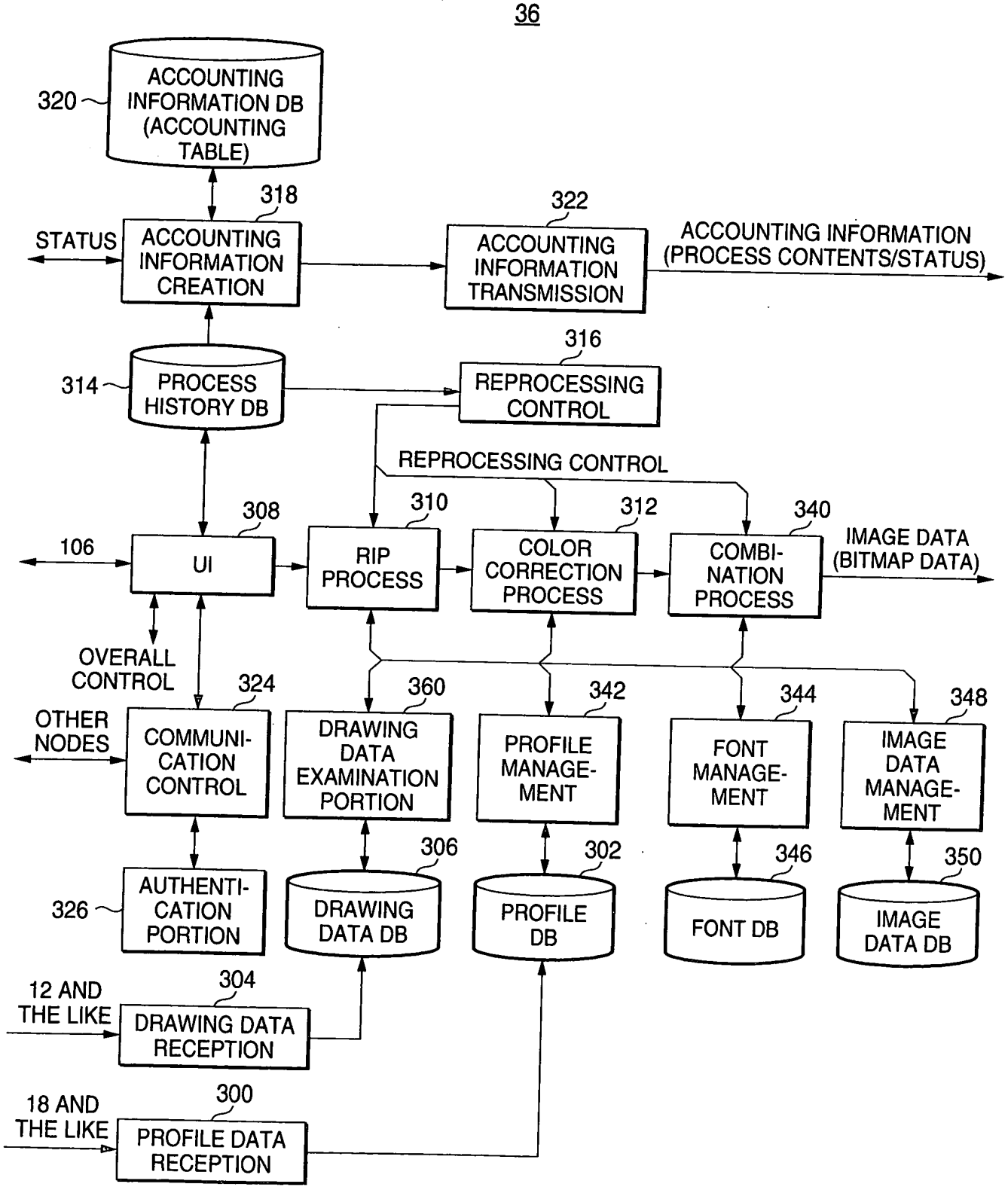
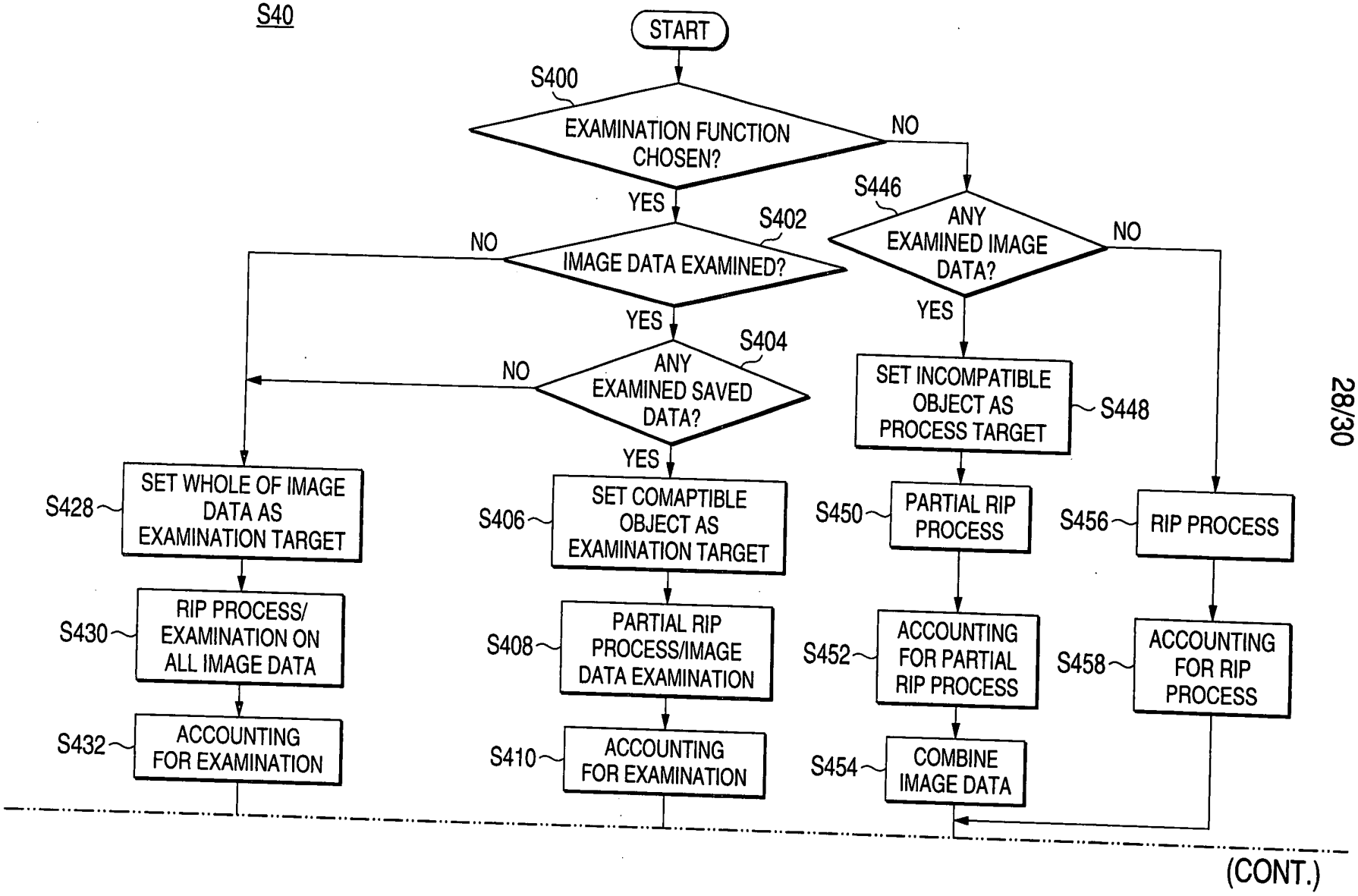

36
320
ACCOUNTING INFORMATION DB (ACCOUNTING TABLE)
318
322
STATUS
ACCOUNTING INFORMATION CREATION
ACCOUNTING INFORMATION TRANSMISSION
ACCOUNTING INFORMATION (PROCESS CONTENTS/STATUS)
316
314
PROCESS HISTORY DB
REPROCESSING CONTROL
REPROCESSING CONTROL
308
310
312
340
106
UI
RIP PROCESS
COLOR CORRECTION PROCESS
COMBI-NATION PROCESS
IMAGE DATA (BITMAP DATA)
OVERALL CONTROL
324
360
342
344
348
OTHER NODES
COMMUNI-CATION CONTROL
DRAWING DATA EXAMINATION PORTION
PROFILE MANAGE-MENT
FONT MANAGE-MENT
IMAGE DATA MANAGE-MENT
306
302
346
350
326
AUTHENTI-CATION PORTION
DRAWING DATA DB
PROFILE DB
FONT DB
IMAGE DATA DB
12 AND THE LIKE
304
DRAWING DATA RECEPTION
18 AND THE LIKE
300
PROFILE DATA RECEPTION

FIG. 29


S40
START
S400
EXAMINATION FUNCTION CHOSEN?
NO
YES
S446
ANY EXAMINED IMAGE DATA?
NO
YES
S402
IMAGE DATA EXAMINED?
NO
YES
S404
ANY EXAMINED SAVED DATA?
NO
YES
SET INCOMPATIBLE OBJECT AS PROCESS TARGET
S448
S428
SET WHOLE OF IMAGE DATA AS EXAMINATION TARGET
S406
SET COMAPTIBLE OBJECT AS EXAMINATION TARGET
S450
PARTIAL RIP PROCESS
S456
RIP PROCESS
S430
RIP PROCESS/ EXAMINATION ON ALL IMAGE DATA
S408
PARTIAL RIP PROCESS/IMAGE DATA EXAMINATION
S452
ACCOUNTING FOR PARTIAL RIP PROCESS
S458
ACCOUNTING FOR RIP PROCESS
S432
ACCOUNTING FOR EXAMINATION
S410
ACCOUNTING FOR EXAMINATION
S454
COMBINE IMAGE DATA
(CONT.)

(FIG. 29 CONTINUED)

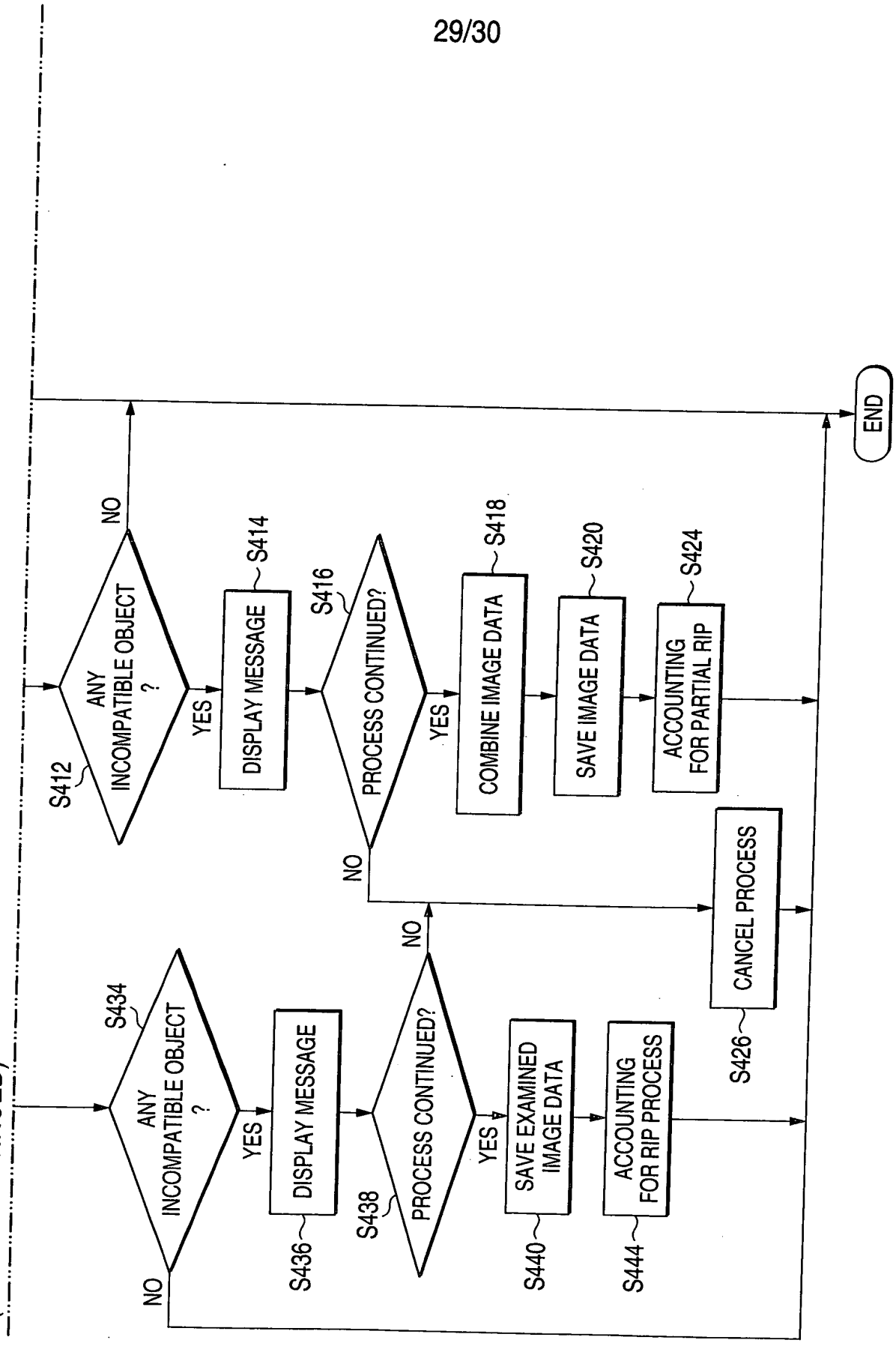


FIG. 30

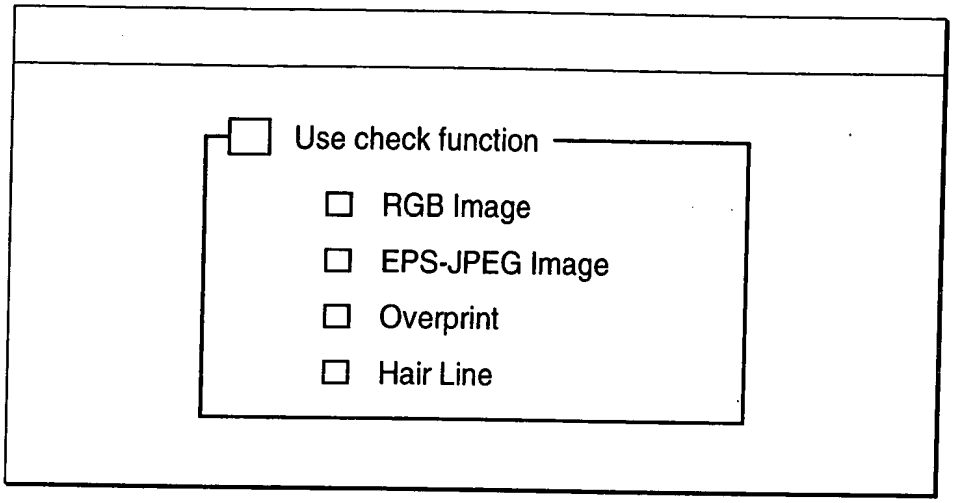
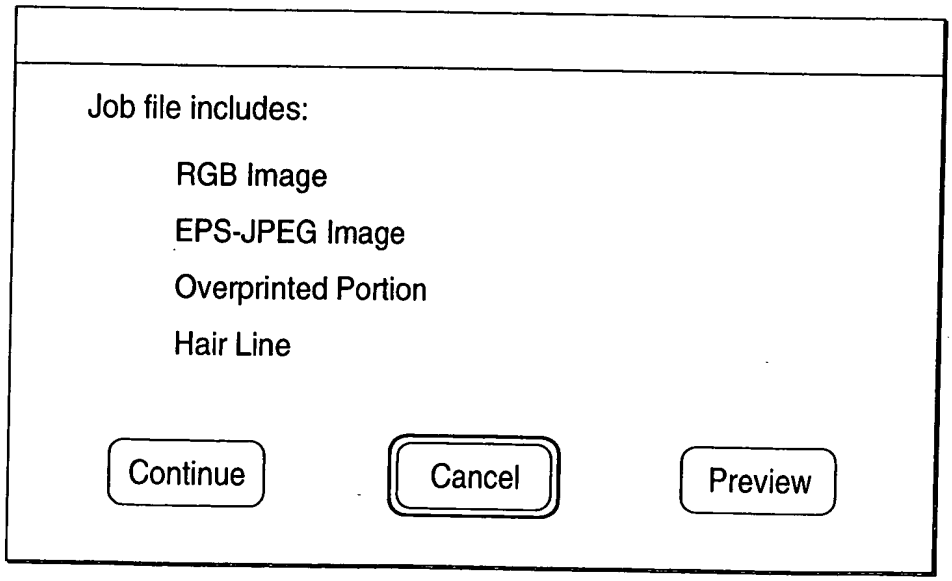

Use check function
RGB Image
EPS-JPEG Image
Overprint
Hair Line

FIG. 31


Job file includes:
RGB Image
EPS-JPEG Image
Overprinted Portion
Hair Line
Continue
Cancel
Preview